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One Hundredth Anniversary 1861-1960

VOLUME 100 AUGUST 1960 NUMBER 8

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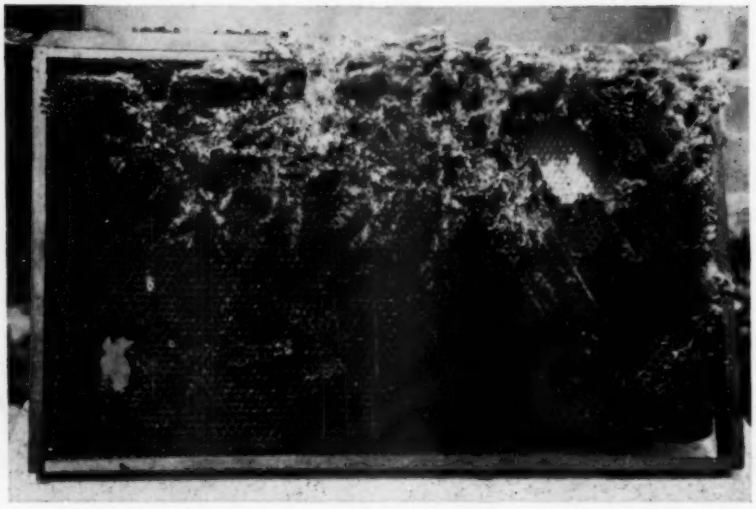

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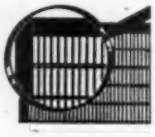

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The
American Bee Journal
Hamilton, Illinois

Vol.100, No. 8 August, 1960

Editor—G. H. Cale
Associate Editors—M. G. Dadant, Roy A. Grout

Published monthly at Hamilton, Illinois. Entered as second-class matter at the Post Office, Hamilton, Ill. In the United States, and Canada, $2.50 a year; two years, $4.50; three years, $6.00. Foreign 50c a year extra. Subscription stopped at expiration date printed on wrapper. Available on microfilm at moderate prices by writing to University Microfilms, Ann Arbor, Michigan.

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Old and New Ideas About Wintering

FROM NEED TO PLENTY— THROUGH THE COLD OF WINTER

C. L. FARRAR
Entomology Research Division,
Agricultural
Research Service, U.S.D.A.[1]

Dr. Farrar is now head of Bee Culture Research Investigations, Entomology Research Division, Agricultural Research Service, U.S.D.A. His studies about wintering have resulted in new concepts that have changed our old ideas on wintering colonies of bees.

The honey bee colony, if allowed to develop without restriction, has a remarkable capacity to adapt itself to great extremes in climate. The colony should be viewed as the living organism representing the honey bee species *Apis mellifera;* the individual bees (queen, workers, and drones) are merely cells of the organism that are continually being regenerated. In nature the species reproduction is through the process of swarming.

The honey bee preceded man in its evolutionary development and remains essentially unchanged even though man has learned to manage colonies for his own benefit. Honey bee colonies were transported by European emigrants from the Eastern to the Western Hemisphere. They multiplied and distributed more rapidly than the land areas were colonized by the new civilization.

Throughout history beekeepers have loved their bees, as well as depending on them for food. It is only natural that many concepts affecting their well-being were patterned after man's own experiences. Many costly mistakes resulted that proved detrimental to the colonies managed; those colonies that existed in the unrestricted wild state survived and reproduced. Honey bees are still wild, and man's success in managing them has resulted from knowledge accumulated through 20 centuries of study of their life history, behavior, and environmental adaptability.

Why such an introduction to a subject on wintering bees? We need to know the kind of organism the honey bee is if we are to understand the changes that have taken place in colony standards and wintering practices.

Before the advent of the movable-comb hive, bees were kept in straw skeps, log gums, or box hives. The successful beekeeper was one whose colonies cast many swarms—two or even three a season. In the fall these were "hefted" to rate them heavy, medium, or light. The medium ones were saved to produce more swarms the next season; the heavy and light ones were fumigated to destroy the bees; the honey and wax were removed as a crop. The heavy colonies would have more honey than needed for winter, whereas the light ones would have too little and would starve.

Some measure of shelter was often provided to protect the colonies from the wind, but the bees were maintained essentially in the wild state except that the beekeeper decided which colonies would survive. Their tremendous reproductive capacity permitted the species to survive and prosper for the benefit of mankind.

Langstroth's invention of the movable-comb hive made it possible for beekeepers to gain new insight into the behavior and organization of the colony. This gave beekeepers an opportunity to observe the inner working of the colony. They invented hives and novel practices to fit their individual ideas and enthusiasm. Many different opinions came into play based on partial truth but often biased by an individual's attempt to change bee behavior in accordance with his own logical reasoning. How to winter bees and how to control swarming became major issues of discussion.

The literature on wintering is too vast to permit discussion of all view-

[1]In cooperation with the Wisconsin Agricultural Experiment Station.

points. A few are given that point to the insight some of the early observers had on the problem.

William Charles Cotton. MY BEE BOOK. (J. G. F. and J. Rivington) London. 1842.

Some readers may be much pleased by the following proof of the advantage of a colony dry and perfectly dark place for putting bees in during the winter months. Six stocks of bees hung up in a room darkened on purpose lost 5 pounds 10-½ ounces per hive during December, January, and February. (p. 87)

L. L. Langstroth. A PRACTICAL TREATISE ON THE HIVE AND THE HONEY-BEE. (A. O. Moore and Co.) 3d ed. Philadelphia. 1859.

I had an excellent opportunity of testing the value of this substance in the backward spring of 1852. On the 5 February I opened a hive containing an artificial swarm of the previous year and found many cells filled with brood. The combs being examined on the 23d contained neither eggs, brood, nor bee bread; and the colony was supplied with pollen from another hive. The next day a large number of eggs were found in the cells. When this supply was exhausted laying again ceased and was only resumed when more was furnished. (p. 81)

Small colonies consume proportionately much more food than large ones and often perish from inability to maintain sufficient heat. (p. 336)

If the colonies are strong in numbers and stores have upward ventilation, easy communication from comb to comb and water when needed, and the hives are sheltered from piercing winds, they have all the conditions essential to wintering successfully in the open air. (p. 346)

Moses Quinby. MYSTERY OF BEE-KEEPING EXPLAINED. (C. M. Saxton New York. 1863.

The period at which they commence to deposit the eggs probably depends on the strength of the colony, amount of honey on hand, etc., and not on the time they commence gathering food. I once removed the bees from a hive on the 10 January and found brood amounting to about 500 sealed over and others in every stage of growth down to the egg. Hence, it appears there is but little time and perhaps none when our best stocks have no brood, yet stocks when weak do not commence until warm weather. (p. 63)

E. Kretchmer. THE AMERICAN BEE KEEPERS GUIDE. (Published by author) Chicago. 1872.

Success in this operation depends to a great extent on the proper preparation of the colony for wintering. If any are found weak in numbers, they should be made strong by uniting two or more colonies; strong colonies consume less honey than small ones. Swarms of the current year are usually deficient in bee bread and one of their combs should be exchanged with a comb from an old colony which generally has a surplus of it. The weight of such swarms without the hive should be at least 30 pounds. (p. 185)

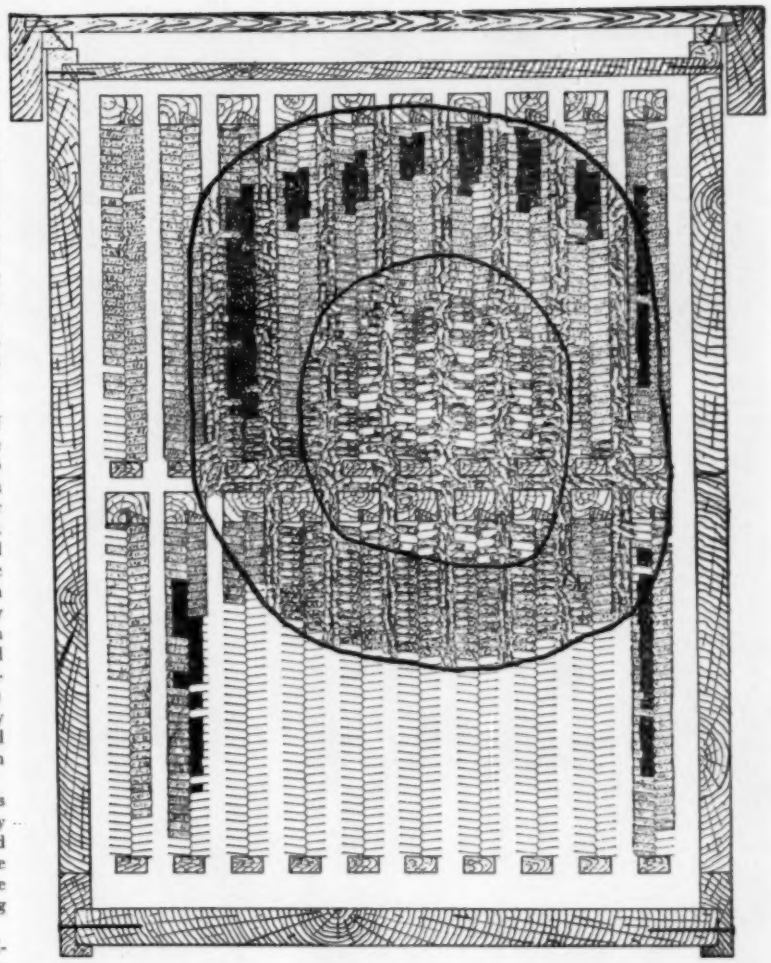


FIGURE 186. From "The Hive and the Honey Bee." Diagram of the winter cluster through the center of the hive, based upon an examination of several colonies. They were killed when the temperature was approximately 0° F. during the latter part of December and before brood rearing had started. The cluster covers 20 to 30 pounds of reserve stores. The much greater concentration of bees in the periphery demarks the insulating shell from the active center. The dark bands of pollen covered with honey indicate an accumulated reserve before the honeyflow. The pollen shown illustrates the optimum reserve more than the quantities found in the average colony. (Photo courtesy Division of Bee Culture)

N. H. and H. A. King. THE BEEKEEPERS TEXT BOOK. (King and Slocum) New York. 1876.

In regions where the ice garb of winter remains unbroken from fall to spring, the consumption of food may be lessened and the safety of light stock better secured by wintering in dry cellars or even in houses. But in this changeable climate it is not so necessary to guard against cold as it is against the great consumption of honey. Hence, unless a dark, dry cellar can be had the mass of beekeepers at least, will succeed best by properly preparing their stocks and leaving them upon their summer stands. In October the exact condition of all stocks should be ascertained both as to their strength and their supply of stores for winter. To insure the safety of stores until flowers bloom in the spring, each should have 25 pounds of honey. (p 106)

C. C. Miller. A THOUSAND ANSWERS TO BEEKEEPING QUESTIONS. (American Bee Journal) Hamilton, Ill. 1917.

A store of 30 or 40 pounds is none too much for wintering outdoors. A stronger colony needing more than a weaker and for cellaring 10 pounds less will do. Better 5 pounds too much than 5 ounces too little. The overplus will not be wasted. (p. 268)

E. F. Phillips. BEEKEEPING. Rev. Ed. (MacMillian). New York. 1928.

To winter well, a colony must be large enough to generate heat and to conserve it economically. It should also contain a great number of young bees and capable of prolonged heat produc-

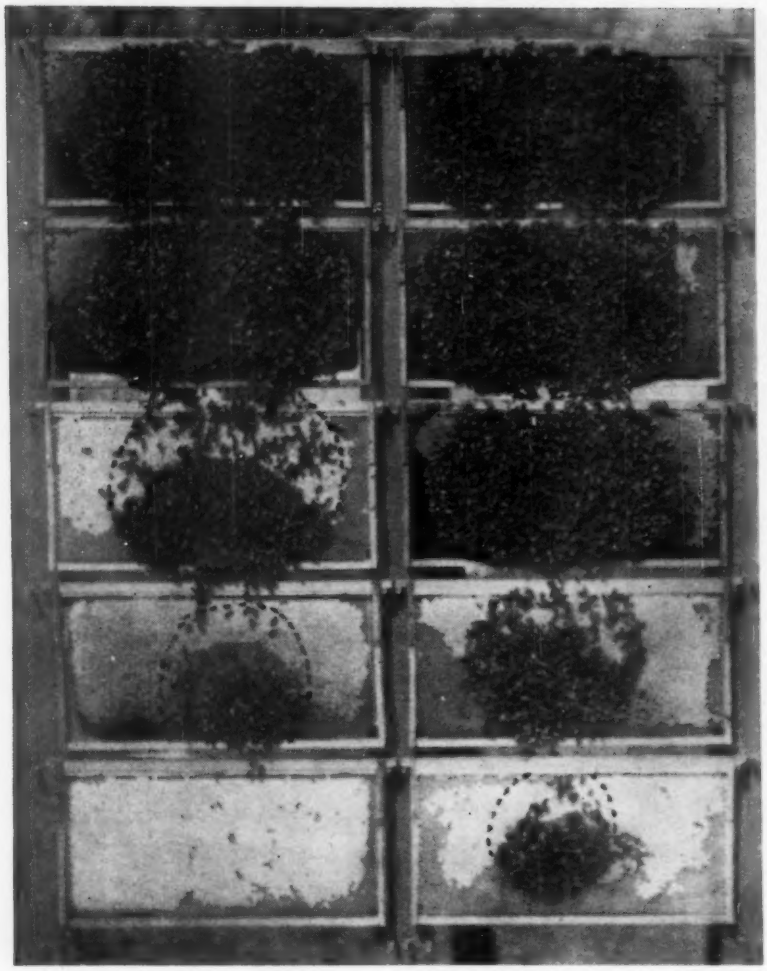


FIGURE 187. Photograph of a winter cluster killed during March when the temperature was 6° F. Because more bees can occupy a given space between combs as honey is consumed, this cluster has contracted into the upper hive body. Approximately one-third of the bees fell off the combs when they were separated, particularly from areas of sealed honey, but the cluster limits have been marked where necessary. On certain frames, the greater concentration of bees forming the insulating shell is plainly evident. The bees shown are those on the side of each frame facing the center of the hive. The two lower combs are from the outside, while the two upper combs are from the center. (Photo courtesy Division of Bee Culture).

tion should this become necessary. The colony should be provided an abundance of food of good quality. Before cold weather arrived each colony which is considered fit to winter out of doors should have in the combs thirty pounds of honey, and preferably considerable more. To insure proper building up of the colonies in the spring, nothing less than 45 pounds should be considered as a safe amount to leave in the fall. Many of the best beekeepers leave still larger amounts. It has been determined by Demuth and the author that bees generate heat in winter by muscular activity and that undisturbed broodless bees generate virtually no heat between 57° and 69° F. Brood rearing, should, so far as possible, be avoided until bees can fly freely. To summarize: for outside wintering, leave abundant stores, pack early and heavily, protect from wind and unpack late. (pp. 362-374)

Until about 30 years ago, the theory of conservation of energy dominated most wintering practices. The object was to provide conditions that were supposed to allow the young bees reared during late summer and early fall to survive the winter. Now it is recognized that stronger and more productive colonies will be available if large honey and pollen reserves are provided. These permit the overwintering colony to replace its old bees and reach a greater population for the principal honeyflows.

The growth or development of the colony can be regulated through proper attention to food and other factors in management. The colony that becomes too strong in advance of the honeyflow can be divided to prevent swarming. The divisions not sufficiently strong for the honeyflow can be reunited at that time to give even a stronger and more productive unit than the normal full-strength colony.

The honey bee is seasonally adaptable to extreme climatic conditions that may be either humid or arid, and temperatures may exceed 120° F. or 50° below zero. Of course, weather conditions must be favorable for bees to visit flowers during periods when pollen and nectar are produced. The natural instinct of honey bees is to store large food reserves for use during dearth periods, whether these be from rain, drought, or extreme cold. It is a contradiction to colony behavior for the beekeeper to take "all" and expect to "spoon feed" the colony just enough for its survival.

The United States Department of Agriculture, many State experiment stations, and European research laboratories have conducted numerous fundamental and applied experiments on wintering. An analysis of the work done strongly suggests that winter losses can largely be attributed to colony standards and methods rather than to climatic extremes. The control or recognition of only single variables in many experiments and observations on wintering explains the frequent differences in results or viewpoints.

The function and need for hive insulation have tested and debated for more than 100 years. Hive and cluster temperatures have been investigated by numerous research workers in the United States and Europe. The conclusions drawn have been influenced by the strength of colonies, amount of hive equipment, climate, and, to a certain extent, by the general concepts in bee management prevailing at the time the studies were made.

The size and position of the cluster determine the temperature in any portion of the hive for a given outside temperature. Subzero temperatures have been recorded in both packed and unprotected hives of normal colonies, indicating that the bees do not attempt to heat the hive space unoccupied by the cluster.

Under falling temperatures the packed hive cools off more slowly than does the unprotected hive and, conversely, under rising temperatures it warms up more slowly. Even with the entrance restricted, the exchange

of air through a packed hive is large in proportion to the space unoccupied by the bees. For insulation to be effective, it would have to be placed around the cluster rather than around the hive.

The cluster has a surface temperature of 43° to 46° F. As the air temperature around the cluster decreases, the bees in the outer area concentrate to form an insulating shell 1 to 3 inches deep to retain the heat generated by the more active bees inside. The cluster temperature is regulated under falling temperatures by contraction of the cluster and raising the temperature inside by increased activity of the center bees. A balance is maintained between the internal temperature, the diameter of the cluster, and the depth of the insulating shell so that heat conducted from within equals the small amount of heat radiated from the surface. It is easy to understand why small populations have greater difficulty in maintaining this balance than full-strength colonies.

Starvation is the major cause of winter losses. It may result from inadequate stores, from their improper position, and from populations too small to maintain contact with their stores. Management practices prior to the winter period may influence all three situations.

A theory of conservation of bee energy and honey stores prevailed for many years. Hive insulation or cellar wintering was supposed to conserve both. A small colony may sometimes winter on less than 10 pounds of honey. Spring feeding was, of course, a recognized necessity. Minimum winter stores at different periods were stated to be 20, 30, 45, and 60 pounds of reserve honey. We now find it better to leave 90 pounds of honey. The best colonies may use nearly that much before spring appears, yet because of their large populations, they often replace the honey consumed over winter from nectar produced by early blossoms. Under the same plant conditions, smaller colonies may continue to consume more than they gather. Furthermore, honey reserves in excess of need eliminate the necessity for spring feeding.

Thirty pounds more honey than the average colony uses is cheap insurance compared with the risk of losing the best colonies because they have even a few ounces too little. Colonies in an apiary showing an average consumption of 55 pounds usually have a

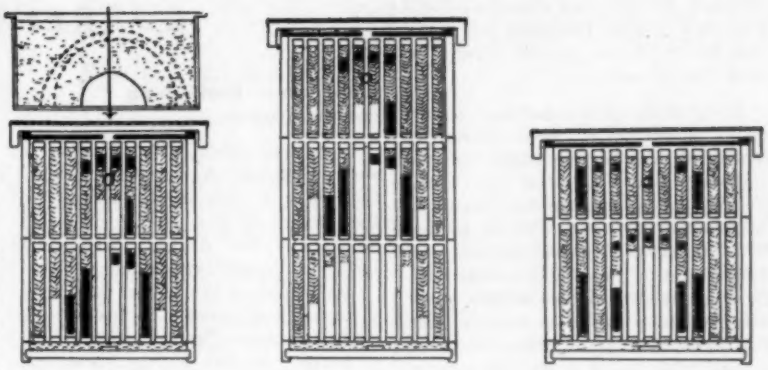


FIGURE 189. Diagrams of the most favorable oganization of honey and pollen reserves for Langstroth and Modified Dadant hives at the close of brood rearing. The arrow drawn through the single frame above the two-story Langstroth hive indicates the position of the section through the three hives. The auger hole in the top chamber and the entrance cleats would, of course, be in the front of the hives. The dark bands illustrating pollen indicate optimum rather than average reserves. By interchanging hive bodies, pollen reserves accumulated early in the season may be covered over with sealed honey. (Photo courtesy Division of Bee Culture)

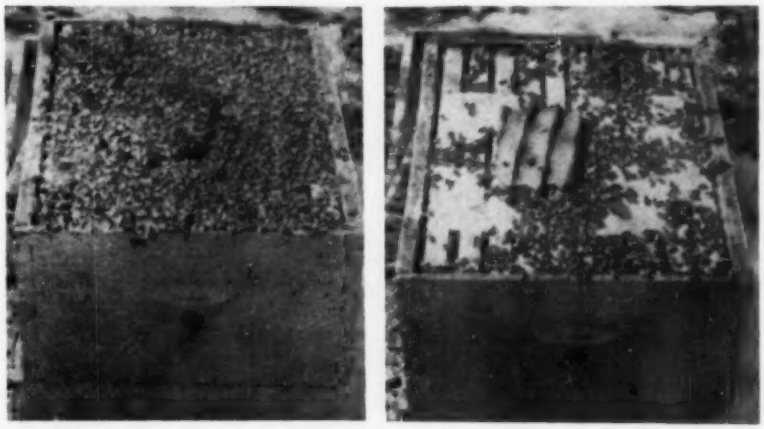


FIGURE 195. Colony feeding on a cake of pollen supplement with soybean flour. The bees practically obscure the wax paper over the cake. The feeding channels are shown after the bees were smoked down, and the cake turned over. (Photo courtesy Division of Bee Culture)

range of 30 to 80 pounds. An understanding of the importance of pollen in wintering has emphasized the need for larger honey reserves. Similarly, the utilization of more productive bee stocks has raised food standards. Colonies that consume more than the average amount of stores produce the greatest yields above what they consume throughout the year.

The advisability of winter packing depends on the relationship between cost of material, labor for packing, and any savings in honey. Packing will not make strong colonies out of those deficient in honey, pollen, or population; those having a poor queen; or those heavily infected with Nosema. The percentage of colonies that will survive on a reserve of 50 pounds of honey is higher for packed colonies than for those without packing; with a reserve of more than 60 pounds, the difference is negligible.

Insufficient pollen to support normal brood rearing during late winter and early spring is the basic cause of spring dwindling in healthy populations. Nosema infections cause dwindling, but normal colonies with generous pollen stores and plenty of honey will rear brood and add large numbers of healthy young bees in place of those infected. By increasing the ratio of healthy to infected bees the infection spreads less rapidly within the total population.

A high Nosema infection is more often associated with dysentery in colonies than in poor quality of honey stores. Colonies wintered on clover honey without pollen survive in a

weaker condition than those on honeydew with pollen. This does not mean that honey of low quality should be used for winter.

A summary of management standards favorable to good wintering under all climatic conditions may be enumerated as follows: (1) Unrestricted brood rearing to provide a normal fall population of 10 pounds of bees; (2) 45 pounds of honey in dark combs in the top hive body plus 20 to 30 pounds in each of two lower hive bodies — total 90 pounds; (3) 500 square inches of pollen reserves, or provision made to supply supplemented pollen cakes during March and April and such other periods when pollen collection is below colony requirements; (4) freedom from Nosema infection or other disease; (5) provision of an auger-hole entrance in the upper hive body and a reduced bottom-board entrance; and (6) the location of hives in full sunlight, protected from wind, and provided with good air drainage away from the hives.

The severity of climate and time of pollen and nectar resources influence to what extent one may deviate from the standards. Snow coverage is not harmful. Upper entrances permit flight when the snow melts from above the hives, even should the bottom entrances become clogged. Small colonies or nuclei should either be united to normal colonies or wintered above these with a screen board separating the upper and lower units. When wintered above, they should contain close to 45 pounds of honey in one hive body.

Colony standards have changed since Langstroth's time, but the principles he outlined covered the requisites of wintering and we need only to assign the necessary values. A colony "strong in numbers" now means 30 thousand young bees. A colony "strong in stores" now means close to 90 pounds of honey and at least 500 square inches of pollen. The upward ventilation he recommended is now provided by an auger hole or other types of top entrances. The importance of water for spring brood rearing has been appreciated; yet it is largely left to chance. Protection from wind, whether obtained by utilizing natural vegetation, hive wrapping or packing, is considered beneficial. To his principles we may add exposure to maximum sunlight, good air drainage within the apiary site, and freedom from Nosema.

CURRENT ITEMS

Book about Beekeeping For the Tropics

Longmans Green & Co., London, in their Tropical Agricultural Series, now have a book on Beekeeping in the Tropics, by Dr. Francis G. Smith of Tanganyika, Africa (Beekeeping Division, Forest Department).

Beekeepers in the tropics now have a beekeeping manual written especially for them. The first of the book is devoted to the biology, behavior, diseases and enemies of bees, the plants that provide most of their food, and the management aspects.

The second part discusses the apiary and its equipment, tools and equipment for apiary work. Part three deals with hive management. Particular emphasis is placed on bee breeding for the beekeeper. The final part is devoted to the crop, its constituents and properties. The London published price is 45s net.

Old Time Fishing Hazards

The following is quoted from the Grand Rapids Press of April 21:

"Want to go fishing? O. K. Here's what you do. Gas up the old Kissell Kar, or the Jeffery or the Stearns Knight. Stow your gear. Don't forget the canvas, you need to drape around the car to keep the brush from rubbing off all the paint. Pick up a pal or two who can take eight hours or so of bumpity-bump. They come in handy to get out and open- and close the gate at that certain farm you must go through to hit the trail again.

"Be sure to turn right up that steep hill and watch closely for that green house—on the corner at the left. Go to the end of the road and take it easy across to the east side of the railroad tracks.

"Now wake up dreamer. That was 45 years ago, and times really have changed but whether you fish the Au Sable or the Rifle, the Manistee, or the Sturgeon you can scarcely help being fascinated with instructions which the late A. G. Woodman wrote in 1915, accompanied by a chart to may the way.

"The direction sheet was found in the effects A. G. Woodman left to his son Baxter who has a hazy recollection of the trip with his dad when Baxter was a stripling. The group finally decided on a cabin near the lumbering village of Baldwin. Splendid isolation, good fishing, both of which they craved."

But the elder Woodman lived to see and rue the "too—many tin can fishermen" who inherited an easier and far faster way to get there.

New Book on Beekeeping

Macmillan & Co., 60 Fifth Ave., New York 11, are just out with a new bee book entitled "Beekeeping," announced as successor to the book by the same name by E. F. Phillips. Co-authors of the book are Dr. J. E. Eckert, professor of entomology and apiculturist at the University of California at Davis and Dr. Frank R. Shaw, associate professor of beekeeping and entomology at the University of Massachusetts. Prof. Shaw has a book to his credit, "Honey Bees and Their Management" (1951) and previous to his present position taught at Cornell University. Dr. Eckert co-author with Harry H. Laidlaw of the book "Queen Rearing" has been a frequent writer of California bulletins as well as in bee magazines and a Hawaiian bulletin is the result of his work with the authorities there.

This book of 536 pages naturally is authoritative and follows fairly closely the style and arrangement of the Phillips book.

Its 25 chapters begin with the development of beekeeping, some early history, making a start in beekeeping, equipment, the colony and its organization, management, characteristics of producing various types of honey and processing, marketing and use of honey.

This is followed by a queen rearing chapter, fall management, wintering, diseases and enemies, pollination, and poisoning of bees, and a chapter on beeswax. The 150 cuts are good illustrations of the subject matter.

Sources of information are listed, and there is a quite comprehensive bibliography of some 44 pages. All in all the book is a definite addition to any library of beekeeping books.

All costs are increasing and the price of the book is in line with those with a listed price of $12.50.

The American Bee Journal is carrying this book in stock for the convenience of its readers at the price listed above, $12.50.

IN THE PINK FOR WINTER

by G. H. CALE

From October 1956

All of us who have kept bees for many years, will remember the time when in spring many colonies were dead and figures from over the country reported winter losses in large figures, particularly during the coldest winters and the longest winters and there have been many experiments and trials to prove that winter losses are due to cold weather primarily.

There have been many bulletins and much research and many articles and disputes and experiences, all of which led to a great diversity of opinions about winter losses. There was a time when it was thought orthodox to pack bees heavily for winter in big packing cases or similar contrivances so the bees would be warm. Warmth was the thing. Don't let the bees become exposed to the cold of winter or they would be gone in the spring.

However, during all this discussion about protection for warmth there were those colonies in box hives or gums or in boxes or barrels or other similar nondescript habitations that survived the coldest weather with few losses provided these colonies had been in their abodes long enough the previous season to have established their own winter quarters in their own natural way. These were enigmas, the unexplained colonies that did not fall into our conception of proper winter management.

As time went on, however, we gradually saw that proper wintering was not just a matter of warmth, it was more a matter of food. If the food supply of the winter colonies was properly provided the chances of loss from temperature were not very great. In fact, a colony in a glass case with its normal combs suspended from rods and subjected to temperatures way below zero, did not die from cold as long as feed was available to the cluster.

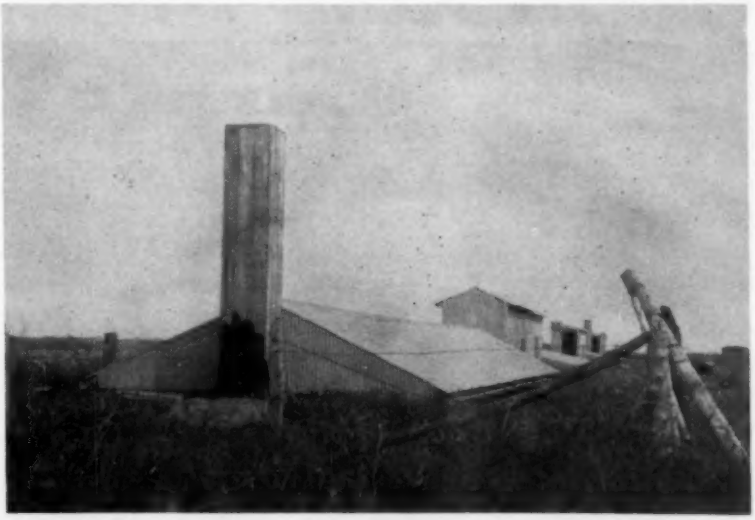
Some bees in every colony are lost in winter. There is no doubt about it, but they are lost in little isolated portions of the so-called winter cluster that are unable to move to stores because they lose their cluster warmth and cannot exert any motion to reach the food necessary for their survival and these small portions drop away from the cluster. They are the ones found dead at the end of winter while the cluster itself remains alive and survives.

So the first consideration of a winter colony is that the cluster be large enough to survive these continuing partial losses. This is the fact behind the oft repeated advice that we need large clusters of young bees able to withstand such losses and come through in good shape in the spring. And behind this, of course, is the usual advice that young queens that will lay heavily late in the fall are very desirable for proper winter survival. This is good sound reasoning. There is a great variation in the laying of queens in the fall period. Some queens cease laying early and some lay just as late as it is possible for them to do so, and the number of young bees provided for the cluster of course is the greatest from the late layers, usually the young queens.

There is little use in trying to winter weak clusters of old bees. They might just as well be removed from the apiary in the fall and so not be robbed out later or present a set of empty combs which are moldy or eaten by mice; or even remain as a source for the distribution of disease not found the fall before. The bees from these undesirables can be shaken off their combs in front of neighbor colonies and the equipment stored for spring divides.

In the days when colonies were kept in single story hives, winter losses were probably more severe than at any other time in our beekeeping history. It is now obviously and rightly conceived that a single hive is not enough for the cluster and a full supply of winter stores for the bees, so losses must be necessarily heavy. It might just as well be said that these bees die from starvation which is actually the case. There may be honey in the hive, but this honey is not where the bees can reach it. Bees that are clustered between combs, cannot move sidewise to reach honey which is there but inaccessible.

Therefore, the honey store must be above the cluster and must be so placed that the cluster of bees can reach it as they move upwards in their natural way during the winter period. Clusters that reach the top bars of the combs on which the cluster is formed may die at the top bars as they cannot move across them and across the upper space and across the bottom bars of the combs above and perhaps continue through empty comb to reach stores that are actually removed from them by several inches. The cluster must be formed in contact with the stores above them. If these



In my early days more beekeepers wintered in cellars than outdoors. Here is a well constructed bee cellar in North Dakota.

Frank Finn's yard in Minnesota. If you feel you need to pack your bees, find a location with a shelter belt and winter like this, with three story colonies.

Or winter like this, with two story colonies, lots of stores, shelter, and top and bottom entrances.

If you can't find shelter make it with a high, slatted fence, with the bees immediately behind it.

stores are partitioned, the bees may starve.

At one time, I helped determine the amount consumed in winter and it is surprising to find that the bees do not consume honey in any great amount until brood rearing begins. The real heavy consumption of stores therefore takes place after brood rearing begins and extends through the early spring and the exhaustion of the stores will occur in properly provided colonies in May rather than before. The job is to provide them with enough honey stores so they get through winter and, if possible, through early brood rearing. So any replenishment of stores will not be needed until May in northern latitudes.

This takes a lot of stores. We used to determine the stores by taking the total weight of the colony, subtracting the weight of empty hives, combs, cluster bees, covers and bottoms, and subtracting this tare from the total weight to determine the amount of food for winter. It used to be thought that thirty pounds was sufficient, but it wasn't. The ante was raised to fifty or sixty pounds and that was scarcely enough. A good one hundred pounds is a bountiful supply in most winter periods up to the period just before the honeyflow the next season.

This certainly does not mean a single hive body. It means two, maybe three. With colonies in three ten frame hive bodies in the fall, the bottom one will be largely empty after all the brood has emerged and will not contain very much stores. However, the bees during the fall period will have placed stores in the second body and the third body will be quite full. Then the bottom body is removed leaving the bees to winter in the two stories with stores properly placed in abundance and within reach of the bees. Then winter losses are practically negligible.

For a long time, we did not understand the entire picture about the winter food supply. We were thinking entirely in terms of the amount of honey, or supplementary feeding that we did in fall, but we forgot about pollen. Dr. Farrar in Wisconsin called attention very forcibly in his writings and lectures and his experiments to the fact that bees not only need honey, but they need pollen. Honey overlaying pollen is ideal. They not only need pollen, but they need lots of it. It is not food for the old bees, but it is for the young, the new brood. It used to be thought that brood rearing began because bees got

so cold and raised the cluster temperature so high that the queen was induced to begin egg laying. Colonies that did begin brood rearing in winter were practically doomed to extinction. How we ever got off on that track, I guess no one ever will know.

Truth is colonies in good condition always begin brood rearing in winter. We have found many colonies with brood in February, certainly most of them in March, when they have the proper stores, and very often colonies in quite early spring will have replaced many of the bees that came through from the fall in the winter cluster. These will be the strong, vigorous, heavy producing colonies of the year.

So pollen is just as important as honey. Bees may survive as adults with honey alone, but they won't have colonies in good condition in spring without the pollen. Much of the dwindling of colonies in spring was simply a matter of pollen exhaustion. Bees could not rear brood to replace the loss of adults in the winter cluster without the pollen. When pollen became available the dwindling stopped and the colony population began to increase from a low point. These colonies often were in poor shape for the honeyflow.

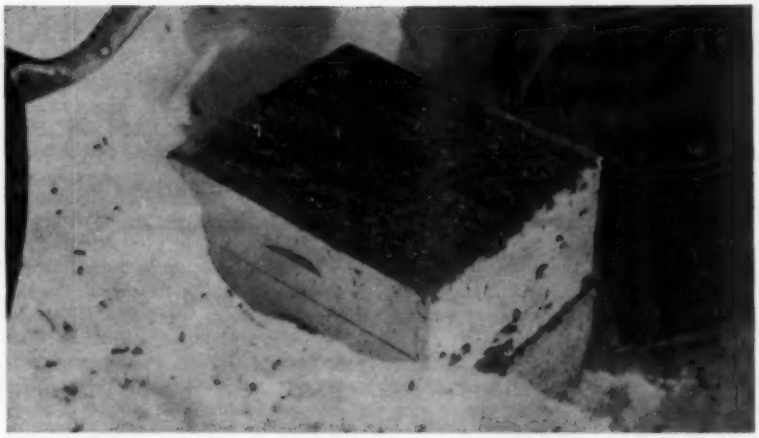
To overcome the deficiencies Farrar was among the first to develop the idea of pollen supplements and pollen substitutes both of which are now widely used to the great advantage of the colonies. There is no substitute however, from an economic standpoint, for pollen properly placed in fall for the winter cluster. The trouble is to have management which will produce this result. Perhaps it is partly a matter of location. Some locations do not provide the pollen. Where they do, that is fortunate. As brood rearing decreases in fall the pollen stores are placed where the winter clusters have access to this supply. There are locations where the pollen supply in late summer is not sufficient to last through until fall. Colonies will have decreased in population and brood rearing will be reduced or it will stop altogether, so that there are few brood combs. A good pollen substitute or supplement then might continue building up the colony for winter without this severe interruption.

So far, we have determined that in our present day conception of wintering we must have an abundance of honey and we must have pollen and we must have a good, young winter cluster.

If there is any particular value in various kinds of wrapping or packing it is from the fact that in northern locations colonies so protected will not consume as much of their stores as those that are not protected. In our own location, middle Ill., we have never found that winter packing is economically advisable, even in the worst winter, with proper winter care, and we have tried all kinds of winter protection.

When packing seems to be advisable from the standpoint of the conservation of stores, the present general plan is to wrap the colonies singly or in two's or four's in black, heavy, tar paper with or without any other protection between the wrapping and the hives. Sometimes casings are used with heavy insulation, but the number who use them is a fraction of what it used to be. Bees were also at one time put in cellars throughout the entire North. This was quite a chore, cost considerable, required a cellar that was suitable, so very few beekeepers use cellars today. Proper cellars for wintering are an engineering job with attention to temperature control and the irritations of accumulated food wastes in the bees.

There is one thing, however, that remains a desirable detail in wintering and that is wind protection provided by artificial fencing or by tree belts or shelter corners. Bees so placed



Moosman at Valentine, Nebraska, proves that a snow cover seldom harms strong colonies. This three story colony, dug out in winter, is a whopper.

Edwin Goff, Blissfield, Michigan, also proves the point. This colony, wintering in three stories, with an abundance of honey and pollen, taken apart in March, shows how strong a colony can be at the end of winter.

are in a very desirable position as far as winter sunshine and cold winds are concerned and shelter belts therefore are still good protection devices.

Considerable discussion is always on tap about winter entrances. Some leave their entrances wide open, some reduce the lower entrances to a small space, some close the lower entrances entirely and provide a top or middle entrance, of some sort. In our own practice, we have a top entrance through the entire year. It may be partly covered in winter with a wire cloth or with wire hardware which is big enough to let bees fly in and out but no mice can get in. These entrances are about ¾ of an inch and they are bored completely through to the comb. We used to close the bottom entrances entirely, but this results in an excessive accumulation of dead bees behind them which sometimes mold so they are not very satisfactory when they are closed tightly. We use an entrance slat with a center cut out for winter flight and so the bottom boards in spring are usually fairly clean and there are no deposits underneath that can not be removed during flight periods. We also find that colonies with top entrances do not cluster as tightly and when conditions are right bees fly more readily and there is no accumulation of moisture in the hive. No matter what others may think, we prefer the top entrance. Something may change our minds, but nothing has since we tried them and settled on a reduced lower entrance and the flight entrance at the top open all year around.

We can summarize by saying that colonies which approach more nearly the natural winter condition as evident by the box hive, gums, and crackerbarrell are more sure to winter and be alive in the spring than they would have from our earlier ideas of winter. To put a colony in pink for winter then it should have a large cluster of young bees produced late in the season, a super abundance of stores within reach of the cluster, sufficient pollen for winter brood rearing for the early replacement of old bees, some shelter and provision for winter flight above the normal entrance.

Pollen Analysis of Honey

Pollen analysis (examples given) alone will not determine the origin of honey. Chemical methods for determining the specific carbohydrates of the plants from which the honey is derived must also be developed.

R.Moreau. Bull. Soc. Sci. Nancy, 1953
(From Dr. F.B. Wells)

CURRENT ITEMS

Controlling and Subduing Bees

A rather interesting mineographed booklet of some 41 pages has been sent to us from England. It is written by Mr. F. Sumpter and is entitled "The Controlling and Subduing of Bees." Much of the book gives specific details on the handling of the colony in a language which would be particularly popular with the beginner.

The last few pages have to do with the use of smoke, water and anaesthesia in subduing honeybees. Paper bound the book carries a price of $1.00 and may be obtained through the British Bee Journal, No. 1 Gough Square, London E. C., England.

Crimson Clover

1960 was a good year for crimson clover seed harvesting according to the U.S.D.A. Their estimate is that the crop will run nearly eleven million pounds or 55 per cent over the small 1959 harvest, though still 34 per cent below the average. The harvest from Oregon is still to be heard from. For the six southern states the average was 160 pounds per acre which would indicate also that the honey harvest must have been good.

There was a small carryover of seed from last year, and the average imports of the seed run around two million pounds.

Seed Prices — Legumes

According to the U.S.D.A. there has been a stiffening of seed prices on legume seeds following the spring planting. It is to be noted, however, that prices of the clovers, vetch and lespedeza are still lower than a year ago, while 212 per cent above the 1909-1914 average.

Bees Working at Night

Some years ago I had the chance to watch bees working on flowers in the nighttime. The basswood trees had flowers full open on the 4th of July and no bees on them. In the evening of the 4th, we had a light shower about dark no more than a heavy dew. I was outside and noticed bees flying. When I got to the basswood tree, they were in it. The bees were coming out of every hive in a stream. At the basswood the bees were on nearly every flower. At the hives the bees were coming back already loaded, flying low. I watched them for about one hour going and coming between the hives and the basswood tree. It was pitch dark by this time. In the morning I was up one hour before daylight and the bees were still at it. The bees were working all the forenoon on basswood. In the afternoon they went to the clover. After this the bees worked on basswood for five days in the forenoon only and on clover in the afternoon.

John L. Dankers
West Salem, Wisconsin

Wild And Ornamental Plants Of Use To Bees

Henry Teuscher of Montreal (Ont.) Botanical Garden has issued Leaflet No. 7 (8 Pages) entitled "Ornamental Plants of Interest to the Apiarist." Twenty annuals besides some dozens of herbs are listed. The perennial list contains 35 listings with additional herbs; and the shrub list totals 32, with a few weeds also given a line. Approximate blooming dates are given.

In the same mail came a 6 page folder of the New England Wildflower Preservation Society from Horticultural Hall in Boston. The society urges the preservation of nectar-bearing plants for the honey bee. There is also a list of plants with their usual habitat, time of blooming etc. This latter booklet is priced at 10 cents.

Both of these booklets were sent to us through the good efforts of our friend in Massachusetts, Mrs. Frances Williams.

Herbert Mace Of England Dies

On April 28 Herbert Mace, a celebrated writer on bees and beekeeping, passed away. He was a prolific writer on bees, both in the magazines and in books. Some of his book titles include, "Bee Matters and Bee Masters," "Bees, Flowers and Fruit," "Book about Bees," "Bee Farming," and "Some Other Bees." In addition he put out a "Beekeepers' Manual" for many years.

Jarvis Book Still A Best Seller

A March 20 issue of one of our larger metropolitan newspapers lists a total of eleven best sellers, six fiction and five non-fiction. Dr. Jarvis' book "Folk Medecine" is included in the latter list.

Echoes from the Past

Does A Colony of Bees Ever Freeze?

by G. M. Doolittle
(from ABJ 1885)

A few days ago a friend called in to have a neighborly chat, and as we talked of the recent severely cold weather (the coldest known here for over 15 years, the mercury being 28° below zero), he asked, "Have not some of your colonies of bees frozen to death?" I replied that "I thought not, as I never knew a colony of bees, while in a normal condition, to freeze during any cold weather ever experienced south of latitude 45; but," said I, "we will go out and look, for possibly some of my colonies may have succumbed to the extreme cold."

Purposely I had prepared several queen-rearing colonies for winter, by way of experiment, some being so small that last November they did not contain a common bowl full of bees, and occupied but two spaces between the combs, while others were seen in only three spaces. A part of these were placed in the cellar, and the rest left on the summer stands. Upon going to the bee yard, we first looked at a full colony, which we found to be in splendid condition, the bees being all clustered in seven spaces between the combs, and so quiet that scarcely a bee moved, although the mercury at this time stood at 35° above zero. Upon raising the hive from the bottom board, not over 20 dead bees were to be seen, which proved conclusively, to me at least, that those bees were wintering in the best possible condition thus far, in spite of the extreme cold. Next, we went to a colony which occupied but four spaces, and found them in as perfect condition as the first, although a practical beekeeper had told me, but two weeks previous, that I could never winter so small a cluster.

We now went to one of the smallest which had so contracted its cluster during the extreme cold, that they could be said to occupy scarcely more than one space between the combs, for there was not more than 100 bees except in the one space; yet this small cluster was perfectly quiet and gave no sign of bee diarrhea. Upon raising the hive from the bottom board, about 100 dead bees were they did around the cross-sticks, thus found which showed that the constant struggle with the cold had caused more bees, in proportion, to die of old age, out of this little cluster than had died from the others; still the greater part of them being alive was sufficient to prove to my friend that bees would never freeze in this latitude while the cluster was in a normal condition.

Our wintering trouble is not caused by bees freezing, but it is caused by the bees getting in an abnormal condition from many of the various causes brought about by long continued cool or cold weather. Let me describe (or re-write what I find in an old diary of mine) my observation of bees during a year when all wintered successfully: "As fall approaches, if we examine a colony of bees we will find that the activity manifested during the spring and summer in the interior of the hive, becomes less and less, so that by the middle of October, in this latitude, all brood rearing has ceased and the bees have become partially dormant; still, so far, they have not packed themselves away in a snug cluster, or compact shape for winter. Every opportunity given by a warm day is improved to void the faeces, so the bees may be prepared for a long, cold spell when such a one occurs. As the weather grows colder the bees contract their cluster, many packing themselves away in the cells till the smallest possible space is occupied by them, and thus the requisite warmth is secured to keep them alive when the mercury sinks below zero.

"In this contraction of the bees (at certain times) many of them are left singly or in little clusters of from five to ten, which do not recede with the main cluster, and thus are chilled where they are, and if the weather becomes cold enough, they may be frozen, thus losing to the cluster that number of bees. The reason for this formerly given was, that owing to the movable frame no cross-sticks were used, as was the case with box-hives, and hence the bees left no holes in the center of the combs as compelling the bees to pass over and around combs of cold honey to keep pace with the receding cluster, instead of passing through the center of the combs to the next range, which was more nearly filled with bees. In thus passing around, many become stiffened and caught by the cold, which might have been saved if holes were provided in the center of the combs for them to pass through. To this end the Langstroth frame and others were provided with a shaving bent to form a circle an inch in diameter, which was suspended from the top bar by means of a little strip of tin, supposing that this would effectually secure a passageway for the bee. However, but a short time elapsed before it became apparent that during a good yield of honey this shaving would be filled with comb and honey, and hence the passageway was cut off. Next, the practice of cutting holes through the combs, each fall, by various means, was resorted to only to be filled up the following summer, when, as winter approached, the process had to be repeated again.

"After trying all these plans, it became apparent to me that the reason assigned as the cause of the death of the bees was not the real trouble, for bees would stay and die within ½ of an inch of these holes, when it would appear they could have passed through these passages just as well as not. I also discovered that when the weather was cool, cloudy and rainy for several weeks before it became severely cold, that this loss was apparently much greater than when a clear, warm day occurred immediately before a severe cold spell. By the numbers of bees that were found on boards and such places, dull and stupid after such a fine day, I concluded that these were the same bees that would have died by not following the cluster, had not a warm day occurred for them to leave the hive to die; hence, I say that the loss was apparently greater when no such day occurred, for many more bees were seen outside of the cluster

dead, as they had no chance to get out of the hive to die.

"From several years' experience in this matter, I see no reason for changing the conclusion thus formed. After the bees once get thoroughly clustered, I do not see this loss occurring after a warm spell, as some claim they do, nor but little after a mild fall like the past has been. After being fully settled for winter, and this loss of old bees has passed away, a colony will lose but few bees for six weeks or two months, and will remain quiet. If at this time a warm day occurs so they can fly freely, they again cluster back quietly, and remain so about the same length of time, when they again desire to fly, and if such a chance occurs, all will go well, and the bees winter well. Thus we have a colony in a normal condition, and all the cold ever obtained in any portion of the world where bees can be kept with profit, (occurring during this period between their flights), will not freeze or materially injure them if they have plenty of stores within easy access."

Although several years have passed since the above was written, I have seen nothing to change my mind on this subject, and still believe that if bees can have a good flight once in six weeks, extremely cold freezing weather between these flights cannot harm them; and that belief is strengthened still more by the bees passing safely through the late, extremely cold weather. Bees had a splendid "fly" on Dec. 31, 1884, at which time no trace of bee diarrhea could be seen, as none of the bees spotted the hives or snow.

THE HIBERNATION OF BEES

Dr. G. L. TINKER
(from ABJ 1886)

During December I have made numerous observations on this subject, and I conclude that those who say that "bees never hibernate," have overlooked some of the most interesting and important facts bearing on the wintering problem. When the Rev. W. F. Clarke first gave us his theory of hibernation, it seemed to excite the amusement of bee-keepers rather than to cause a sober conviction that it involved any truth worth thinking about. I am now able to say that if we ever expect to winter bees scientifically — perfectly — we must provide them with conditions and surroundings that they may hibernate from the beginning of winter to the time when instinct prompts them to begin breeding; then hibernation must necessarily cease.

My bees begin to breed in February, after the first good flight; sometimes they begin as early as February 1, and again, not until the last of the month. Bees in-doors, or where they are unable to take flight, may not begin breeding till late in March. Early breeding is, therefore, a nominal circumstance, but one which may be delayed indefinitely by taking all beebread from the bees. Experience, however, has shown that it is not wise to do this if we expect to get enough bees to secure an early harvest. In this, as in many other things, the chances are that it is the early bird that gets the worm. The correct policy would seem to be to favor early breeding as much as possible, even if we get a great many bees that we shall be obliged to feed for a few days before the expected honey-flow. I have never yet had too many bees in my hives by June 1, and I never expect to have.

To promote early breeding, reason would dictate, and experience has shown that the bees should be placed in such conditions that we may raise the temperature about them to 50°, and possibly higher, without permitting it to fall back to a low temperature until the bees have become strong in numbers. Whether we can best secure these conditions in a cellar, bee-house, or chaff hive, is still an open question, with the weight of argument against the chaff hive.

Probably few have considered the close relation that exists between vigorous and healthy colonies at the beginning of spring breeding, and the strong colonies that we want on June 1. My belief is, that we shall not be able to winter bees perfectly until we shall master the problem of hibernation—until we shall secure to them that perfect rest in early winter which is conservative of their vital forces, up to the time when they should begin to breed. If they are exhausted in any way before this time, our hopes of strong colonies and tons of honey will be defeated to the extent of that exhaustion.

I believe that I was the first to point out the fact in the columns of the *American Bee Journal*, that restless bees in winter confinement suffer a waste of tissue, and require not only bee-bread, but honey in large amount. With the restlessness and active waste, the bees are weakened and worn out, only too often, before it is time to commence breeding, when, if they had been able to hibernate up to this period, and subsequently had been properly warmed up to aid them in brood-rearing, they would have survived for active service until late in May and June. I have known old bees to survive and do good service until June 15.

What hibernation is, and how it can be secured, will appear from the following:

On the morning of Dec. 7, the temperature in this locality fell to 8° below zero. During the day I carried 17 colonies in single-walled hives into the cellar, which is 25x35x8 feet, has no ventilation, and is perfectly dark. The thermometer registered 41° above zero. About 10 p.m. I went down into the cellar with a lamp to see what they were about. The entrances being large (¾-inch deep), I could see the bees clustered on the bottom of the combs in every hive, and the cluster extended to the bottom-board. They had not a particle of top ventilation and were contracted on from 4 to 7 frames, being mostly on 5 Victor frames. The light was turned up to burn very brightly so that I could see, if possible, their respirations. To my surprise, they all appeared as if dead; they were *entirely motionless*, and the closest examination showed no perceptible respiration. After a few minutes, now and then one would draw its abdomen forward as if disturbed by the light, and then straighten out again; then all was motionless as before. Thus I continued to examine each colony of bees for several minutes, but found after about 10 minutes, with the light shining close and full upon them, that they began to move about, and to respire once or twice at long intervals.

"Hibernation" is a term long since dropped as bees do not hibernate in the true sense of the word. They cluster.

From this time on, I frequently examined them and at all times of the day and night. So long as the temperature remained at 40° to 42° they remained thus undisturbed by the light; but when the temperature was above or below this point, they did not bear the light well, and almost instantly began to move about, and occasionally one would come out of the hive. At 38° and 37° the bees were restless under the light; at 41° they were least so. I then made up my mind that this was the point of temperature at which they most perfectly hibernated.

For a wider range of observations I now went to the colonies out-of-doors; 16 of them were on Gallup frames and were clustered up so high that I could not see them. The balance were on shallow frames and among them were three contracted on 4 and 5 frames in which I had an unobstructed view. None had upward ventilation. On these, the observations were all made after night, using for the purpose a small lantern furnishing a light as bright as the lamp. The weather being variable, I was able to make all needed observations. I found that when the mercury stood at 40° to 42°, the bees were all hibernating and acted the same in all respects as did those in the cellar. At 32° they were impatient of the light; at 20° they were uneasy and many respiring; and at 9° they were restless and moving about lively, as well as respiring. Below 20° all signs of hibernation apparently had ceased. How it was in the double-walled hives I do not know, as I could not see the bees, but I believe that it would take a much lower temperature to interrupt hibernation than in these three single-walled hives.

When the temperature went above 45° the bees began to show signs of activity; at 50° they had ceased to hibernate and began to respire; and at the approach of the light they moved about freely.

My observations three years since were made late—in February—and I now think that the bees were then breeding, as on every occasion they were seen to be respiring, but most of them very slowly. The temperature of the cluster was higher—about 90° —ascertained by a number of tests with a good thermometer. The temperature in the hives now in my cellar, I found to be 54° among the bees at the lower part of the cluster, when the temperature of the cellar was at 40°. The center of the cluster could not have been very much higher than this, so they could not have been breeding. I therefore believe that the thermometer will prove a reliable guide in determining whether the bees are hibernating or breeding at any given time.

Some are inclined to think that the temperature of the bee-cellar should be high—about 50°—all winter. Mr. Doolittle has said that he would consider it a great acquisition if he had a bee-cellar that he could keep at 55° without artificial heat. Now, as a matter of fact, I think that few bee-cellars can be kept above 45° without artificial heat; but as a certain degree of cold is essential to hibernation, and that about 41°, what more can we ask? Somehow, I am becoming impressed with the idea that a great part of our wintering troubles comes from upward ventilation in hives. The great success of Mr. Ira Barber, in wintering, may be due to the fact that he gives his bees no top ventilation, and the further fact that his bee-cellar will not likely average above 45°; it certainly will not, if he applies no artificial heat.

If the most perfect hibernating conditions exist at 41°, that is the temperature which the bee-cellar should have in early winter. When breeding begins, then artificial means of heating to 50° to 55° will materially aid the bees in their work, and, I am thinking, may come to be an indispensable measure with all progressive apiarists.

New Philadelphia, O.

THANK YOU BOTH

Words of appreciation about the One Hundredth Anniversary of ABJ.

From—Gordon F. Townsend in behalf of the Ontario Beekeepers' Association.

"On behalf of the Directors and Members of the Ontario Beekeepers' Association I wish to convey to you their congratulations on this your One Hundredth Anniversary of publication. Your Journal has been of inestimable value in the development of the beekeeping industry during this period and we certainly wish you the best of success in future years."

Gordon F. Townsend
Secretary

From—H. R. Brown for the Scottish Beekeepers' Association.

"At our Executive Committee meeting on the 13th of February last, I was instructed to send you the warm congratulations of our Association on the Hundredth Anniversary of your estimable Journal.

"It is a unique achievement for any publication and the finest testimonial to the skill, care and thought which has piloted the Journal through the vicissitudes of a hundred years. During this time it has grown steadily in popularity and its influence has extended to all quarters of the world. You have kept the torch burning brightly. We wish you even greater prosperity in the future."

H. R. Brown
Honorable Secretary

The Sideline Producer

BEEKEEPING IN SUBURBIA

by A. H. LAWRENCE

Stamford, Connecticut is about 35 miles from New York City. Like all suburban areas it has and is growing with the trend of people to "move out." Our city is proud of the Stamford Museum and Nature Center which is a non-profit enterprise dedicated to education and conservation. The grounds are most delightful and are visited by hundreds of people each week.

Close by their recently completed Overbrook Nature Center Building are the two beehives they have to provide interest and education for those who visit the place. One of the hives is a standard 10-frame unit, the other is a glass-walled exhibition hive. On the wall of the Overbrook Building is an extremely well done exhibit of charts and specimens showing all stages of the life of a honey bee and including samples of various colors and kinds of honey.

A few weeks ago my son Brian, 14 years of age, heard that the Museum needed somebody to care for the bees. When he volunteered to do the job, he was welcomed with open arms by the Museum staff and he is very happy in his new responsibility. He checks the hives weekly and enjoys telling those who watch him at the hives all about the bees, especially how the queen goes about her work. It is surprising to observe the many people who seem to be keenly interested in learning something about the honey bee or who seek some authoritative confirmation of some facts they have heard at some time or other.

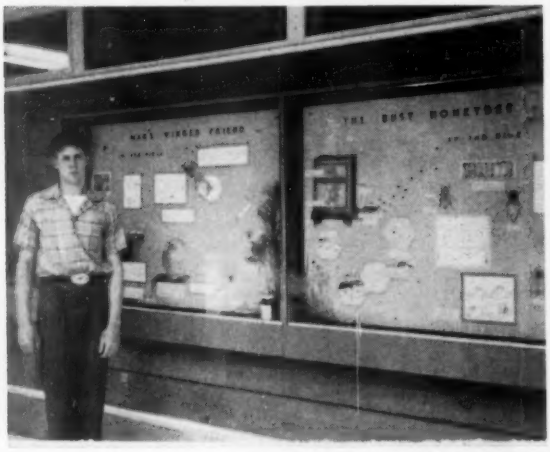
Brian's interest in beekeeping is only a year old as is my own. In April, a year ago, a friend who is a beekeeper of many years experience asked me if I would like a hive of bees at our new home located in what is still the rural part of Stamford. Not thinking he was serious, I replied casually that I would. How surprised I was on returning from a business trip to find my friend Bill Maguire had set up a hive at the back end of my one and a half acre lot. How helpless I felt not knowing a thing about this buzzing colony of workers which were to be my responsibility.

Being an engineer by profession I knew the only approach to my problem was to learn the facts so I purchased two books, "The Hive and The Honey Bee" and "The A.B.C. of Bee Culture." These I studied diligently while commuting to and from my office in New York City. When I was not reading the books, Brian picked them up, which was a pleasant surprise because he is not one to read much. As we gained knowledge of our new found friends, our enthusiam for our hobby increased.

In late June last year, we heard of a swarm that had settled in a tree, so with the help of friend Maguire we brought it home and hived it about 10 p.m., after we took our first lesson in frame wiring and foundation installation. With two colonies now, Brian and I felt that we really were in the business. The swarm was apparently an after-swarm so all it did was build up and put in enough honey for its winter stores. Being neophytes we lost a swarm from our first colony so it too produced only its winter supply of food.

Weekly inspections have taught us a great deal about these most interesting little creatures which we consider our friends in spite of an occasional sting. Both colonies wintered successfully but the queen of the swarm colony was not able to do much this spring so she has been superseded. Our original colony is boiling over with bees and being carefully watched for the proper time to take swarm prevention measures. We feel quite certain we are going to harvest some surplus honey this year.

Connecticut



Brian Lawrence, age 14, who was recently made beekeeper at the Stamford Museum, standing by the Museum's display of the honey bee.

Brian Lawrence at the Stamford Museum glass walled exhibition hive.

KENTUCKY'S INSPECTOR

TOM HINES AND HIS PLAN OF MANAGEMENT

Inspector Hines in his apiary.

Tommy Hines is the only inspector for Kentucky covering all 120 counties. He operates about a hundred colonies near Morgantown. His average production in 1958 was 130 pounds to the colony.

For successful beekeeping he believes in the following—plenty of bees, timing and plenty of hard work.

His seasonal plan is a very definitely worked out system. In April, with the colonies in two-hive bodies, he divides the brood of each colony over a double division screen with about three combs of unsealed or partially sealed brood in the top body. The queen is left below. Since the bodies have been reversed once the queen, at the time of division, is usually in the top body. About twice as many bees as seems necessary are shaken into the top body. Each unit now has room for nectar storage and brood rearing, and each one is supered if it needs room. The new queen is introduced above the screen.

By the time the main honeyflow starts the colonies are usually three to four bodies high. Swarming is not much of a problem if the yards are equallized by switching strong colonies for weak ones prior to the flow. A day or two after the flow begins the screens are pulled and each of the two units thrown together. Extra supers are added if necessary. This is one of the easiest methods for producing extracted honey.

If you are running mostly for chunk honey there are a few more problems. Production is better if the colony is reduced back to two bodies and then comb honey supers put on. But this tends to create swarming even when drastic swarm control methods are used unless the honeyflow opens up to a peak right away. I plan to use the Killion bottom board and his exact plan of swarm control for chunk honey production.

(Manuscript compiled from letters from Inspector Hines)

A Lesson From Swarming

by Chas. W. Smith

Although I know that bees should be managed in such a way that swarming is held to a minimum still one of my best colonies happened to be a swarm that came out on May 4 this year. Being quite busy from April 15th in a special assignment I felt the bees could wait until there was more time to put on extra supers. However, the bees came out on Sunday, May 3 but went back. But on Monday, May 4 they really boiled over. They lodged on two crab apple trees and we had to take an aluminum dipper and "dip" them into the hive until we got the queen.

I did not have a hive body on hand so I used one shallow super with drawn comb, with another empty super on top of that. The bees could scarcely get in, they were so numerous. On Tuesday, the next day, I gave them a hive body with foundation in brood frames and left them for a week. When I returned to the bee yard one week later they had drawn and filled the hive body and also filled the drawn super. I gave them another super and in another week they had also filled it.

This brought home to me the importance of leaving plenty of honey on the hives. I left these bees with two supers and they really built up strong in a hurry. This experience also impressed me with the honey-gathering ability of a really strong working force of bees. It would be interesting to know if the bees would have gathered more had they not swarmed. Probably so. However, the parent colony is blessed with a new queen that is changing the color of the bees. They too are doing all right, storing at present two supers of honey, including some sourwood.

It is so easy to make a serious mistake in beekeeping as well as in anything else. Trying to do the right thing I clapped a queen excluder onto the parent colony after I had smoked them down from the top super. Thinking I had forced the queen down I went ahead and placed the excluder above the brood nest. After a week it was disappointing indeed to find no eggs or larvae in the brood chamber. Taking a frame of brood and eggs from the neighbor colony would have been all right in most cases. After doing just that, I discovered eggs and larvae—but in the super above! I had trapped the queen upstairs a week or two before! After much shifting of supers again and also getting a few stings the queen was back where she ought to be.

After this I believe it is by far the best to manage your own increase instead of allowing the bees to swarm. It is bound to be much easier and simpler and I believe, more productive. Next spring I am not going to get caught. It costs.
North Caroline.

Honey in the Attic

Eight members of a Kansas City family are having honey on their breakfast toast straight from the ceiling. The first sticky drop fell in Alvin Satterly's kitchen. The drop became a drip and finally plaster also fell. Then it was discovered that bees had deposited the honey in a space between the ceiling and the upstairs bedroom.

The honey may be tasty but a cleanup and replastering job is on the schedule.

James Gann
Stockton, California

Specials

Activities of The Chattanooga Area Association

by Hugh V. Maddox

Frequently we are asked about the activities of the Chattanooga Area Beekeepers' Association. The association moves along for two reasons, first, just about everybody is interested in bees, in one way or another. Second, "Beekeepers are the finest people in the world" said a man when inviting me to a monthly meeting. Since that day in 1957, I have heard this said many times in meetings, in conventions, by hotel people where conventions were held. And this is exactly the way members feel about beekeepers, therefore, there is no fault finding, no one always trying to make a speech, no one running for office, no jealousy, no attempt to glorify any individual, rather we take a lesson from the bees which work together for the good of the colony.

Realizing that men, women and children are interested in bees, newspapers write about monthly meetings and several times each year members are interviewed for feature stories with bee pictures. Radio stations give out announcements and from time to time beekeepers are interviewed on the air. Our bees have been on TV, in observation hives of course. Members with observation hives are invited to schools, to civic clubs and other meetings. An interesting experience came about when a Sunday school teacher requested a beekeeper to talk for ten minutes on God's Order and Design, using bees as illustrations. The man chosen for this talk is a Bible student. He knows his Bible. He knows bees and he knows how to prepare and give a talk. Word got out and adults skipped their classes to sit in. The talk went on for ten minutes and then the speaker was asked to use the entire period. You can imagine the interest, the questions, invitations issued to this beekeeper. For several days after the talk he received letters from those who heard him, expressing thanks and appreciation for his good work.

Good, wholesome publicity does much to interest visitors in coming to monthly meetings and many of the visitors become beekeepers, thus adding to the large number of people who enjoy the fascinating hobby of keeping bees. Publicity helps, too, in connection with nature's fine food, honey. Instead of the usual greeting of "How are you?" often beekeepers are asked "How are the bees?" "That jar of honey you gave me is the best we have ever tasted. May we purchase a good supply?" Our members are well aware of the fact that every jar of good honey distributed helps every beekeeper and should a jar of bad honey go out every beekeeper will be hurt. Keeping this in mind it is easy to understand that when honey is offered for sale it is quickly bought up.

Membership is made up mostly of men, women, young boys and girls who keep a few colonies as a hobby. Also hobbyists who became so enthusi-

The author, Hugh Maddox, helps a friend look at the bees. A magnifying glass helps.

The Chattanooga area chooses a lovely "Honey Queen."

astic about keeping bees that they are now operating on a commercial scale. All are interested in learning and seeing others become better beekeepers for they realize that what helps one, helps all. Many use the bee books at the public library, subscribe to bee journals, some take correspondence courses in beekeeping from Ohio State, Pennsylvania State and Cornell Universities. Each year, in March, the Association sponsors a ten lesson course in beekeeping. This is a very thorough course with capable instructors, discussion panels, motion pictures, slides, coffee breaks, banquet. Certificates are awarded to those who complete the course. Just now the Association is considering two such schools a year, one in March and one in September. The Association is quite interested in young boys and girls going into beekeeping in connection with its youth program. This year, 23 beginners, grade and high school students, came to the bee school to receive instruction in getting started right with their bees. Members assist students in putting on science projects in their schools, always a most interesting feature.

Officers and members plan the program for monthly meetings, a program which consists of short talks, demonstrations, question and answer panels, intermission for conversation and visiting. The program is aimed at giving everyone a chance to take part in getting exactly the information he or she may need. Meetings are started on time and stopped on time. Weather permitting, monthly meetings are held in the Association's experimental bee yard. At these meetings actual demonstrations are given, for example, on how to install package bees and how to hive a swarm, look for disease, the use of the acid board, requeening. Italians, Caucasians, Carniolans, Starlines and Midnites are studied. Equipment comes in for close scrutiny. Feeding is properly done, in fact, all phases of beekeeping are studied. Honey is taken off, packed and marketed by members to give the Association money in the bank. When radio and television stations, the Association's monthly newsletters and the newspapers announce the meeting it is interesting to see the automobiles begin to line up down the road bringing people to see the bees at work. Some out for the first time, proceed cautiously fully believeing that the bees are going to pounce on them if they get very close. Later, you will find them in the yard, watching the bees, looking for the queen. A man may be heard to say "Shucks, nothing to it, bees won't sting me." (He will get his awakening later, of course.) Visitors who express an interest in keeping bees will be helped by members in getting started. Names and telephone numbers of experienced beekeepers in various localities are given out to enable any beekeeper to receive help over the telephone at any time. We are told that this is considered most helpful, especially to beginners. We encourage beginners to spend a day with members of broad experience and training, to get first hand information in their apiaries. This year, nucs for queen rearing are being added to the experimental bee yard, not that we expect to encourage all beekeepers to become queen breeders. We believe this will serve to show the importance of good queens and also to give an idea of how much a scientific queen breeder may do to provide beekeepers with good queens. This work will be supervised by members who are qualified queen breeders.

Last year, our Association invited the Tennessee Beekeepers Association to hold its annual convention in Chattanooga. We gained much from this convention with beekeepers from several states. This year, the Southern States Beekeepers Federation accepted our invitation to hold its 32nd annual convention in Chattanooga. Tennessee beekeepers and the local convention and visitors bureau are going all out to give this event the widest publicity. Queen breeders, equipment manufacturers, men of research, producers, packers, marketing specialists, publishers of books and bee journals and others will participate in the program. We shall be happy come November 14 and 15 to welcome beekeepers from more than 20 states who will meet their friends in Chattanooga.

CURRENT ITEMS

Electric Heat for Bees

The Rural Ketuckian for March has a full page advertisement from Consumers Credit, a heating electrical concern, bearing the title "Almost any home these days can be heated electrically. Naturally, there will be a few minor exceptions such as beehives and bird nests."

Well, we don't know much about whether bird nests could be electrically heated or not but Consumers Credit is likely not aware that frequently beehives are heated electrically. As a means of wintering important nuclei, we have (A.B.J.) a hundred or more multiple nuclei over electric heating units and divided into sections of nuclei so that a control unit at one end supplies electricity at the command of a thermostat through the entire winter time. When heat is called for in cold weather, the electricity turns on automatically and supplies heat and turns off automatically when the heat is not needed.

Apiculture Encyclopedia — (Enciclopedia Apicola)

This is a new and well-done series of thirty bulletins prepared by Arturo Wulfrath and Dr. Juan Joaquin Speck—owners and managers of Miel Carlota, Cuernavaca, Mor., Mexico.

Each bulletin has a beautiful, full color picture of actual beekeeping operations in Mexico, and each one treats a different phase of beekeeping and related problems. The entire series covers every step in beekeeping from the beginning one or two colonies up to large apiary management. The authors then give their readers complete details of honey extracting, preparation of honey for sale, medicinal value of honey, recipes for honey use, etc. Included are bulletins on bee diseases and their control and a very detailed bulletin on the various honey plants of Mexico.

The authors are to be commended for this well-done, Spanish language addition to the available literature on bees. The entire series of highly illustrated bulletins sells for $7.20, post paid.

The bulletins or chapters are later to appear in book form. In fact the first volume is already available in book form, paper cover at $4.00.

The American Bee Journal is prepared to handle orders for either the book or the 30 bulletins, or they may be ordered directly of the authors and publishers as above.

Waterproofing For Leather

Two pounds of tallow, 1 pound of resin, ½ pound beeswax. Melt over a slow fire and before applying to the uppers of boots or shoes fill the leather with neatsfoot oil to reduce danger of burning the leather. They will also keep soft and pliable longer. For the soles use the tallow and resin and be careful not to burn the leather. Mrs. A. J. Armstrong, Pocatello, Idaho.

Out of The Past–For Future's Gain . . .

THE SECTION HONEY BOX

by WILLIAM G. EATON

William G. Eaton, Winchester, Ky., author of the series of articles, OUT OF THE PAST — FOR FUTURE'S GAIN, says: "I made the remark to a friend of mine, 'You know, we just don't have winters like we used to have. Why, I can remember . . . . . .' One week later, I was eating my words, uh, snow, that is."

One of the most fascinating stories in all beedom is the account of the discovery of the bee space and the resulting development of the top-opening, movable-comb hive. Without a doubt, this discovery has meant more to the beekeeping industry than any other, in fact, it actually created a complete "new way" in beekeeping management.

The years immediately following the new discovery were hectic ones, because claims and counter-claims were always besieging the public. No doubt, this was the result of the frantic quest for industry development, but in many cases it was the outcome of those individuals who were seeking personal acclaim and advancement of their development at any cost to the buying public. Many times, it is said, that the owner of a patent would have been far better off, had he simply given his discovery to the beekeeping fraternity, rather than trying to protect and promote it.

With the development of the new type hive, which afforded beekeepers a means for controlling their bees, came the period of refinement and improvement of the several hives that were before the public. The need now was to separate surplus honey from the brood nest and to find a ready means of expansion when the crop came in. This gave rise to Section Honey Boxes.

Although J. S. Harbison, of California, is credited with the original development of the section honey box, there were several others connected with the pattern of over-all development of this improvement which afforded more attractive sales. One of those individuals receiving special attention for their early contribution, leading to the development of the one-piece section, was General D. L. Adair, of Hawesville, Kentucky.

Frank C. Pellett, author of "History of American Beekeeping," records the Adair contribution as follows.

"In 1869, D. L. Adair, of Hawesville, Kentucky, had patented a section beehive which had a surplus chamber made by fitting a series of sections together, nine in a clamp. This seems to have met with some favor, and for a time Adair sold rights for use to individual beekeepers with one sample section for three dollars." These section honey boxes were just wide enough to accompany a sheet of comb, and could be made to fit any hive.

This interesting testimonial from a satisfied Canadian beekeeper comes from the pages of "Progressive Bee Culture," which was published by Adair.

"D. L. Adair, Esq. —Dear Sir: I had one of your Section Honey Boxes sent me by a friend. I have not seen anything to equal them during my thirty years practice among bee hives. If Mr. Langstroth be entitled to praise for his improvements in hives, certainly you are entitled to double praise for improving the Honey Boxes. I would suggest that in the future, D. L. Adair be titled the Section Bee-Hive King. John Jewitt, Lucknow, Canada."

In addition to "Progressive Bee Culture," which was translated into several European languages, the Kentucky author, naturalist and inventor published three other works which were also very popular, and afforded him a subscriber's list of over 5,000. These publications were:

Section honey boxes, such as the Adair development, were developed to separate surplus honey from the brood nest and to find a ready means of expansion as the crop came in. Adair's section honey boxes, and hive to accompany them, were patented in 1869.

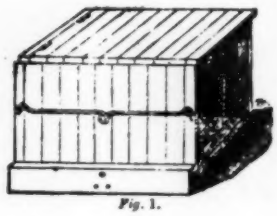
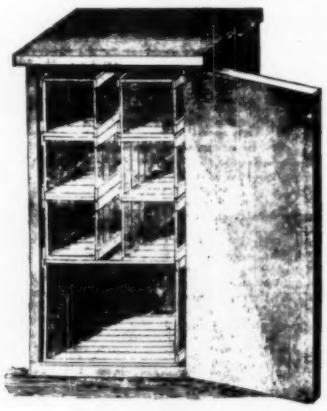


Fig. 1.



"Adair's New System of Beekeeping"
"Outlines of Bee-Culture"
"Annals of Bee-Culture"

The "Annals of Bee Culture" seems to have been the most popular, since it contained communications from the leading apiarists and naturalists of the era, 1869-1872. These works were short-lived and are of historical value only for us today.

His many articles and varied accomplishments would lead one to assume that he had received the highest of college degrees. However, such is not the case, for he was without a day of formal education, yet this intellectual giant spoke and wrote fluently in four different languages other than English. He enlisted as a Private in Kentucky's Fourth Regiment, with whom he fought during the Mexican War, rising to the rank of General.

The following glowing description, along with the material on beekeeping, comes to me from Gen. Adair's grand-daughter, Mrs. Brownie Adair Gans, of Louisville. She says: "He taught me the wonders of the universe from our back stoop at night. He instilled into me his philosophy and revered awe of the Creator and His purpose for our existence. He taught me the beauty of music, *real music*, such as the sweep of the winds, the rhythmic roar of the torrents and our waterfall nearby, the songs of the birds, the loveliness of a quiet summer night, the closeness and oneness of a winter evening."

I think that it is most appropriate, as we relive those early days of the "new way" throughout the Anniversary Year of the AMERICAN BEE JOURNAL, to recall the words of the poet as he says:

"The lives of great men all remind us,
We can make our lives sublime;
And departing, leave behind us
Footprints on the sands of time."

HOW TO DO IT

That First Super

Put on the first super, preferably of drawn combs rather than foundation, with the first fruit bloom, or a bit before. Don't use an excluder—it will just keep the bees out of the super and as they become crowded out below where the honey will be going they will swarm as never before! The queen might lay a few eggs in the super if there is no excluder, but that doesn't matter—if she thinks she needs that extra room for eggs for the time being don't argue with her! Be prepared to put on another super as soon as they are definitely storing honey in the first one—maybe within a week or two. It really doesn't hurt to put the first two supers on together. A week or two early with a super does no harm—but it probably won't have any honey stored in it if it goes on just a *day* too late! Keep a step ahead of the bees or your run for that honey crop will be futile indeed.

Richard Taylor
(Rhode Island Quarterly)

Unusual Smoker Fuel

An excellent fuel for the smoker can be obtained from the flower stalks of flax. In New Zeland, we use the stalks of the native flax (Phorium tenax) which grows about 8 feet tall with bright red flowers full of nectar. In the fall I cut off the flower stalks and cut them into lengths to fit the smoker, 5 to 6 inches, and dry them in bundles. When dry dip the bundles into hot paraffin about an inch deep and store them until you are ready to use them in the spring.

The paraffin helps the punk light easily. I usually load the smoker, leaving room for one more stalk and then light this last stalk with a cigarette lighter. Place it in the center of the smoker and you are set for an hour or more solid work with the bees.

Also the flax stalk fuel is just as effective as laughing gas (or carbolic cloths) for driving bees from supers. It is cheaper, burns longer, stops the colony from being robbed as sometimes happens with nitrous oxide if you inadvertently give an overdose and actually put bees to sleep. The flax will grow easily in almost any situation but seems to prefer damp places the best.

John A. Foote,
Ngaruawahia, New Zeland

Tweezers to Remove Workers

I have an easy way to remove workers from queen cages. Pull the staples from the wire at the end opposite the candy in the cage. Take plain eyebrow tweezers. As the worker bees come to the raised wire, just grab them with the tweezers. This is quick and easy. Be careful, of course, not to get the queen.

C. H. Smith,
Ft. Worth, Texas

Switching for Swarm Control

I like the method of switching locations of colonies to hold down swarming. I have used it but find it involves work.

The following is a method which I like best of all. When the bees are in 2-story colonies, first head each colony with a young queen in late August or September, the previous year.

When these bees the following season seems to get crowded in the second brood nest, and there is a flow on or when the bees are fed and the weather is not cold, take out one or two combs of brood or honey at each side of the brood nest and then let the bees build in new comb on foundation. This seems to curb the swarming impulse for a time.

Also one can keep a young queen in a hive by the side of the old colony and as the honeyflow advances, shake some of the bees from the old colony into the new, transfer the supers over and then move away the old colony.

Hubert Martin, Dryridge, Kentucky

Collecting Lost Bees

When a bee yard is moved, for a distance shorter than the flight range of the bees, many of the bees will return to the former location. These bees may be collected at the day's end in a hive body containing two empty combs and using a caged queen. The cage with the queen is placed near a group of bees that may have collected in the yard. The bees then become excited and gather around the cage with the queen. All groups of bees may by this means be brushed into the collecting hive. Then the caged queen may be hung in the hive body. After sundown the hive is closed and moved into the new location. The bees are smoked with ammonium nitrate (laughing gas) and put where you want them to be.

M. Stejskal
Venezuela

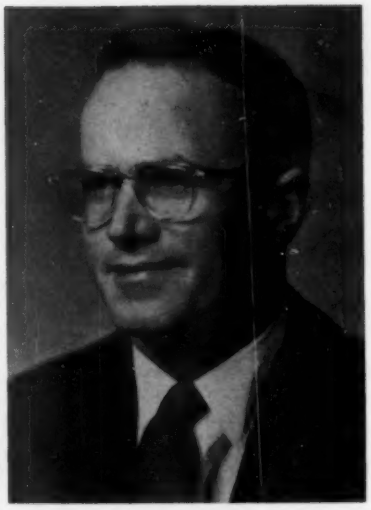
Bait for Mouse Traps

I find that candied honey makes a very good bait for mouse traps.

George A. Collins
Newton
Illinois

The Beginner and Novice

Editor - W. W. Clarke, Jr.
204 Agricultural Education Building
Pennsylvania State University
University Park, Penn.



• *Question from*
E. V. Wilkey
Fort Bragg, Calif.

► I am in my second year of beekeeping with ten colonies, with the intention of doubling them. I live in a damp climate. I have thirty brood combs in storage with wired foundation, some drawn and some not. Intending to use them, I looked them over and found that I had left a lot of bee bread in some of the drawn comb. They are moldy. Can I use them? Will the bees clean them? Will the mold injure the bees?

Answer

Yes, you can use these combs that you have stored even though the pollen or bee bread, as you call it, has molded. The bees will clean out any pollen that they cannot use. Bees are very good housekeepers and can do a better job of cleaning up the equipment than the beekeeper himself on such material as pollen.

• *Question from*
Walter B. Cox
Missoula, Montana

► I recently met a Colorado beekeeper who does not try to winter bees. He keeps the brood combs over the winter and gets package bees each spring. How can one keep the combs safe and away from insects so they may be used in spring? How does one kill the bees? Is one hive body enough with such an arrangement? Is this a practical way to manage bees?

Answer

I think you will have to decide for yourself whether or not you should kill your bees or winter them. Here are some questions to consider: (1) Can bees be wintered successfully in your area?; (2) Can you get package bees early enough to build strong colonies for the main honeyflow?; and (3) Cost.

The combs may be preserved by treating them with carbon disulfide during the warm weather in the fall. Two or three treatments 10 days apart may be necessary. Place the hive body and supers in an airtight stack, use about ⅓ ounce of carbon disulfide for each super in a shallow dish on top of the pile and cover the stack. (Use carbon disulfide in the open away from flames or sparks since it is explosive.)

I have always thought that more than one hive body is needed to build a strong colony. I would allow the queen free range, even if it takes three hive bodies, and restrict her when the main honeyflow starts.

This system of destroying colonies is not new, but should only be used in areas where wintering is a problem, since over-wintered colonies will usually out-produce package bees. This is especially true in areas where there are early flows of honey.

The best way to kill the bees is to use cyanogas. Some beekeepers will destroy the queen at the beginning of the fall honeyflow to restrict the brood rearing and kill the bees at the end of this flow. A tablespoon of cyanogas placed on a card is pushed into the entrance and the entrance closed. The colony will be dead in a few minutes. (Cyanogas is deadly to humans, so use it with care.)

• *Question from*
Walter C. Lehmann
Cedar Rapids, Iowa

► I would like to know how to make two colonies from one. I have 15 strong colonies I would like to divide. Can I slip an empty super of comb between the first and third bodies, wait until it is full of brood, then take it away and place a queen in it? Will this division accept a new queen?

Answer

You can very easily increase the number of colonies of your bees by making divisions in the early spring. The time is dependent upon a source of nectar which, although it does not need to be a heavy honeyflow, should be dependable. In Pennsylvania this is usually done in late April or early May at fruit bloom time, or about 5-6 weeks ahead of the main honeyflow from clover.

Probably the best way to make a division is to take about 4 frames of bees with brood and the queen from the original colony and place them on a new stand. Requeen the original hive. Use drawn comb to fill both hives and feed both colonies. The brood may come from several colonies to make up the division so as not to weaken the original colonies. A new queen is needed for each new colony.

• *Question from*
Robert J. Peach
Union City, Indiana

► Are lima beans a dependable source of honey in north central Indiana? I am sure I have read where they produce nectar but Lovell does not list them in his book on honey plants. I am not far from an acreage of limas.

Answer

It has been our experience that lima beans, although they may be a good source of nectar, are not dependable.

Our beekeepers report that they produce a very light honey of good quality in the years that there is a crop.

I am not at all sure what they will do in Indiana but I would not rely on them.

• *Question from*
Lewis Hottenstein
Chanute, Kansas

► My bees are in double story hives and are really strong, and wanting to swarm. Can I put on a third story of foundation now (May 10) as I do not have drawn comb? Would the bees chew it? I intend to reduce the colonies for comb honey.

Answer

If your bees are as strong as you say you not only can but should put on the 3rd story even though it contains foundation.

If there is even the slightest hint of a honeyflow I'm sure the bees will start to draw out the foundation. If there is no honeyflow you may feed a small amount of syrup to help them get started.

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The Federation

Secretary Joseph O. Moffett

115 So. College Ave., Fort Collins, Colorado

Executive Committee met June 27-28. The executive committee of your Federation met June 27-28 at Denver. Many important items were discussed and decided.

Biloxi will host 1962 convention. The committee voted to accept the invitation to hold the 1962 convention in Biloxi, Mississippi.

Details of Insurance Plan announced. The details of the insurance available for beekeepers signing after May 1 have been determined. To be eligible, a beekeeper must be under 55 years of age. The quarterly premium will be $16.50. The coverage will be as follows:

Under age 55	$5,000
55-59	.$3,000
60-64	.$2,000
65-74	.$1,000
Age 75 and over . . .	.$ 500

This does not affect the beekeepers signing before May 1, 1960. More young applicants are badly needed if we are to have a sound plan.

Beware selling Dr. Jarvis' book. If you are selling Dr. Jarvis' book. "Vermont Folk Medicine" and also selling honey, you may have trouble with the Food and Drug branch of the Federal Government. A large western packer related his troubles along this line at the executive committee meeting in Denver.

This packer had advertised copies of Dr. Jarvis' book at a reduced price if the buyer would send along a label from a container of the packer's honey. Food and Drug made two inspections and took an inventory of the packer's stock.

After trying to have the packer sign a four-page indictment, the inspectors threatened to close the plant. They then said the U.S. Marshal would be sent out to handle the case. At the time this is written, the incident is still unsolved.

A packer in a northern state had his honey seized until reprints from Dr. Jarvis' book were removed from the outside of the jars.

Many people ask why Food and Drug will not accept the statements made in Dr. Jarvis' book. This agency generally will only accept research done at universities or medical schools. It must be done very carefully by recognized scientists. Usually important findings must be verified by many different researchers.

Regardless of the merits of faults in Dr. Jarvis' book, all packers should be aware of the feelings of the Food and Drug people. They apparently have the power to close down a packing plant if the packer is selling or promoting this book.

Honey booth popular at Home Economists Convention. The committee had the opportunity of examining the honey booth at the American Home Economists Association Convention in Denver. This attractive booth had a map of the United States showing how much honey was produced in each state. C. D. Floyd's young daughter was dressed as a queen bee. As usual, this booth attracted a lot of favorable attention and helped bring honey before this influential group.

Federation to borrow money to operate. Despite the increase in members and funds, the Federation will have to borrow money to operate. The committee voted to borrow $2,000 to finance the organization until January 1. The loss of big contributions from industry is responsible for the Federation's financial difficulties.

Membership within reach of all-time high. The Federation could reach its greatest individual membership in 1960. Join with your fellow beekeepers in the growing Federation. Help us to serve you better. Send your dues in today. Minimum dues are $3.00 with a suggested rate of 4c a colony for beekeepers having over 75 colonies.

Meetings and Events

Winners at the Fourth Annual Eastern Honey and Baked Goods Show at Rutgers University, New Brunswick, New Jersey, June 24

A. I. Root Company, Medina, Ohio; Trophy — Extracted Honey — John Linder, Cumberland, Md.

Dadant & Sons, Hamilton, Illinois; Trophy—Comb Honey—Fern E. Wilson, Cumberland, Md.

Wax Workers, Ithaca, New York; Trophy—Wax—J. R. Engle, Mt. Joy, Pa.

Walter T. Kelley, Clarkson, Kentucky; Trophy—Frame Bulk Honey—Paul S. Ziegler, Bethel, Pa.

Lancaster Dutch Gold, Lancaster, Pennsylvania; Trophy—Mrs. Rebecca Sayre, Stamford, Connecticut.

Winners in the various classes were:

White Extracted Honey—L. B. Shearman, Glenarm, Maryland.

Extra Light Amber Extracted Honey—Francis Moticka, Honesdale, Pennsylvania.

Light Amber Extracted Honey—Fern E. Wilson, Cumberland, Maryland.

Amber Extracted Honey—John Lindner, Cumberland, Maryland.

Dark Extracted Honey—Floyd Sandt, Easton, Pennsylvania.

Light Comb Honey—Fern E. Wilson, Cumberland, Maryland.

Dark Comb Honey—Fern E. Wilson, Cumberland, Maryland.

Finely Granulated Honey—Lloyd Shearman, Glenarm, Maryland.

Frame Bulk Honey—Paul S. Ziegler, Bethel, Pennsylvania.

Beeswax—J. R. Engle, Mt. Joy, Pennsylvania.

Cookies—Mrs. Mary Stevens, Weston, Massachusetts.

Cake—Thomas Kenyon, Lancaster, Pennsylvania.

Candy—E. J. Anderson, State College, Pennsylvania.

Bread—Mrs. Rebecca Sayre, Stamford, Connecticut.

Midwestern, Kansas City
August 14th

The Midwestern Association will hold its Annual Picnic at Swope Park, Shelter House No. 7, Kansas City, Missouri, from 11:00 A.M. to 5:00 P.M., Sunday, August 14. To reach shelter house No. 7 from Kansas City, take Gregory Blvd. east to turn in park, continue east a short distance to No. 7.

Come prepared for a good time—Bring a basket lunch-Drinks will be furnished.

Prizes will be awarded to winners of Honey Contests, (bring a jar of your best honey), prizes to winners of numerous other games and activities, also a prize will be awarded to the beekeeper traveling the greatest distance to attend.

See you at the picnic, bring your family and friends.

Everyone welcome.

James A. Worrel
Secretary

Berks County (Pa.)
Leesport, August 6th

The Berks County Association will hold their summer picnic on August 6th at 2:00 P.M., E.D.T. at the Ontelaunee Orchards located on Route 122 at Leesport, about nine miles north of Reading, Pa. An interesting program has been planned. Our famous "Honey Ice Cream" will be served. An invitation is extended to all persons interested in bees. Bring your smoker for the smoker contest.

Samuel B. Althouse
Secretary

Annual Beekeepers' Field Day
Purdue University, Lafayette, Indiana
Wednesday, August 3.

10:00 - 12:30 CDT Memorial Center—Room 202

General Program—

Boys and girls in beekeeping—Jerry M. Macklin, Purdue.

10:45 - Room 202 - Program for beekeepers—

After the honeyflow - What?—John Amos, Virginia Polytechnic Institute, Blacksburg, Virginia.

The 1960 season—Gilbert Perigo, Chief apiary inspector, Indianapolis.

10:45 - Room 307—Program for wives and others not interested in beekeeping practices.

Honey in a competitive market—Richard Maxon, Purdue.

Demonstration of effects of using honey and other sweetening agents in cooking—Marcile Allen, Purdue.

12:45 - 2:00—Happy Hollow Park, West Lafayette

Picnic—Family style basket dinner.

2:00 - 3:30—The use of chemicals in beekeeping—John Amos.

Introduction of inspectors and zone assignment—Gilbert Perigo.

Demonstration on examining colonies of bees—Inspectors.

Directions to Happy Hollow Park—Happy Hollow Park is located at the northeast corner of West Lafayette. To reach the picnic area, go north on State Road 43 (North River Road) from State Street ("at foot of hill"); angle left on State Road 443 at slightly less than a mile (just at edge of town); then turn left into the Park (note sign) at about a quarter of a mile (near foot of hill). Our basket dinner is scheduled for the lower (first) shelter house.

Pennsylvania Annual Picnic
Penn State, August 20th

The Pennsylvania Association will hold its Annual Picnic at Hort Park, Penn State University, August 20th, starting at 10 A.M.

A good program of speakers, music, and games has been planned including the choosing and crowning of a 1960 Penna. Honey Queen.

Dr. E. J. Dyce is guest speaker.

Bring picnic lunch or covered dish to pass; rolls, pie or cake plus your table service. Coffee and lemonade will be furnished by the host, the Center County Association. A cordial welcome is extended to all.

Bob Crimbring
Secretary

Western New York Honey Producers
Akron, New York, August 6th

The annual meeting and election of officers of the Western N.Y. Honey Producers' Association will be August 6th, at Akron Park. Bring basket lunch for noon meal. Coffee and ice cream furnished. Non-members invited but please register.

Paul C. Lang
Secretary

Middlesex County (Mass.)
Harvard, August 27th

At the home and apiary of Mr. William Maxant, Ayer Road, Harvard, Massachusett, the Middlesex County Association will hold its August inspection of the club hive. This section of the county is noted for its orchards so a tour through Mr. Maxant's hives should prove most interesting. After the business meeting picnic suppers will be enjoyed. The club furnishes coffee and ice cream.

It should be noted that this is the week-end of the Middlesex County 4-H Fair in Westford, Mass. Many of our beekeepers will want to visit the 4-H Bee Exhibit.

The annual meeting of the Massachusetts Federation of Beekeeping Association's will be August 6th at the Field Station of the University of Massachusetts in Waltham, Mass. The program is under the direction of Professor Frank Shaw of the University.

Betty Carlson
Secretary

Logan County (Ohio)
Bellefontaine, August 14th

The Logan County Association will have a picnic and field day, Sunday, August 14th, at the Bellefontaine Fairgrounds. Basket lunch at 12 noon. Speakers—Emerson Long, St. Paris, Ohio's largest beekeeper; Dr. W. E. Dunham and son Norman, Deer Creek Honey Farms, London; Elton Kinny, Vo. Ag. teacher, Rushsylvania; William Moorhead, queen breeder and package bee producer of Georgia and Funston, Ohio; Jack Happ, Managing Editor of Gleanings in Bee Culture, Medina.

Prizes for the heaviest full depth and shallow extracting frame of honey; smoker contest; lots of door prizes. All beekeepers welcome.

R. L. Lovermore
President

North Carolina State
Cullowhee, August 12th and 13th

The North Carolina State Association will hold its next meeting on August 12th and 13th at Cullowhee, North Carolina.

Cullowhee is located in the western part of our state and close to the tallest mountains east of the Mississippi River and there are plenty of shade trees to sit under and talk over our different bee problems and try to find a solution for them.

With plenty of delicious food prepared by experts and served Cafeteria style for your enjoyment I know of no better place to spend a two days' vacation with other beekeepers and either learn something or help some other beekeeper who needs it.

These prices are for those arriving Thursday evening and will include lodging for two nights with three meals on Friday and two meals on Saturday, $8.50.

For those arriving Friday morning to include two meals Friday, lodging

(Please turn to page 328)

American Honey Queen for 1960

Here Miss Monica McNutt is being crowned American Honey Queen for 1960 by Tennessee Secretary of State, Mr. Bolin, at the National Convention in Phoenix. She was chosen Tennessee Queen at the State Convention in Chattanooga in October. The McNutt family has been interested in bees for three generations. Miss McNutt is a senior at the David Lipscomb High School in Nashville. At her right is Kay Seidelman, of Michigan, 1959 National Honey Queen.

Iowa's Entrant for Miss Universe

Kay Nielson was Iowa's entrant for the Miss Universe Contest. She was "Adopted" by the Sioux Honey Association. Sioux presented her that beautiful Indian ceremonial head dress. Roy Smock, sales manager, also brought along some honey as a gift to the Mayor of Long Beach where the beauty pageant took place.

Friday night and two meals Saturday, $6.00.

Will expect you in Cullowhee.

S. C. Squires
Secretary

Welcome to Penn State's Beekeeping Short Course

The dates are August 15-19, followed by the State Meeting and Picnic, August 20th. The complete short course program below:

BEEKEEPING SHORT COURSE
August 15-18, 1960
The Pennsylvania State University

Monday A.M.—
1- to 12 Registration.

Monday P.M.
1:30 A word of welcome—Dr. Bertil G. Anderson.
1:40 Announcements—Dr. Fred C. Snyder.
1:50 Introductions.
2:00 Secrets of the Hive—Edwin J. Anderson.
2:45 Making a Start in Beekeeping—W. W. Clarke.
3:30 Inspection of the laboratory and its equipment.

Tuesday A.M.—
8:30 Colony Activities and Characteristics—Edwin J. Anderson.
9:00 Care and Introduction of Package Bees — W. W. Clarke.
9:45 Spring Management — Edwin J. Anderson.
10:30 Races of Bees — W. W. Clarke.
11:00 Comb Honey Production—E. J. Dyce.

Tuesday P.M.
1:30 Work in the Apiaries to Observe.
a. general mangement practices.
b. honey production.
c. swarm control practices.
d. to remove honey from colonies, with bee-escapes, carbolic acid cloths, and shaking.

Tuesday Eve.—
7:30 Honey Producing Areas. Honey Plants (slides).

Wednesday A.M.—
8:30 The Story of Beeswax—W. W. Clarke.
9:15 Comb Honey Production—Edwin J. Anderson.
9:45 Pollination—W. W. Clarke.
10:30 Swarm Control—E. J. Dyce.
11:15 Extracted Honey Production—Edwin J. Anderson.

Wednesday P.M.—
1:30 Demonstrations.
1. Shaking package bees.
2. Introducing package bees.
3. Transferring bees from a box to a modern hive.

Wednesday Eve.—
7:30 Composition and Properties of Honey—Edwin J. Anderson.
Slides on Beekeeping in Peru—E. J. Dyce.

Thursday A.M.—
8:30 Packing and Processing Extracted and Creamed Honey—E. J. Dyce.
9:15 Requeening—Edwin J. Anderson.
10:00 Fall and Winter Management—W. W. Clarke.
10:45 Queen Rearing—Edwin J. Anderson.
11:30 Question Period.

Thursday P. M.—
1:30 Examining colonies in the apiary used for queen rearing and mating queens.
Grafting in the apiary.
Clipping queens and painting them with a colored lacquer.
Removing honey.
Making queen rearing equipment.

Thursday Eve.—
7:30 Movies on Beekeeping.

Friday A.M.—
8:30 Diseases of the Honeybee—W. W. Clarke.
9:00 Evolution of the Honeybee—E. J. Dyce.
10:00 Marketing Honey—Edwin J. Anderson.
11:00 Uses of Honey—Roger A. Morse.

Friday P.M.—
1:30 Extracting and bottling honey in the honey house.
Grading comb honey.
Wrapping comb honey.
Bottling chunk honey.
Working beeswax.
Making creamed honey.
6:30 Banquet at the Autoport—A. R. Dean, Toastmaster.
Color Slides on Beekeeping in Australia—E. J. Dyce.

The cost of the course is room and board plus a registration fee of $7.25 for Pennsylvania beekeepers and $12.25 for beekeepers from other states. To register write Dr. Fred C. Snyder, Director of Short Courses, 211 Armsby Building, College of Agriculture, The Pennsylvania State University, University Park, Pennsylvania.

Tennessee Series
August 5-7

A series of three meetings will be held in Tennessee in August. The first will be at Fountain City, just outside Knoxville, on Friday, August 5th. The second August 6th at the Agricultural Farm on Hogan Road, east of Highway 31, at Brentwood, near Nashville. The third and last meeting will be at the Penal Farm outside Memphis on August 7th. Good programs and speakers.

U.S.D.A. Honey Display in European Food Trade Fairs

The United States Depart of Agriculture will include a honey display among the U. S. exhibits at the London, England, and Munich, Germany International Food Trade Fairs this fall. Honey will be included at the London fair for the first time because sales of U. S. honey in the United Kingdom have been liberalized and there appears to be a good possibility of regaining a portion of this market for U. S. honey exporters. Germany is by far the largest present importer of U. S. honey.

The honey display at these fairs will be made by U. S. honey firms operating under the direction of the U. S. Dep't of Agriculture. Sioux Honey Ass'n, Superior Honey Co., B-Z-B Honey Co., and W. F. Straub & Co., will have exhibits at both fairs, Miller's Honey Co. will display at Munich only. These firms will display honey in the most popular retail containers, and there will be opportunity and facilities to conduct bulk sales business. There will be some public sampling done at both fairs and a trial will be made of selling U. S. brands of honey in their own retail packages to English and German consumers. It has been learned that Canadian, Australian and Hungarian honey is similiarly displayed and sold at the London Fair.

This year, for the first time, the U. S. Department of Agriculture has invited a representative of the entire U. S. honey industry to be with the honey displays. This representative will work under the supervision of the USDA representative in charge of the honey exhibit. He will aid in conducting the display and the retail honey sales program. The Department asked the Honey Industry Council to select a representative from the industry. Millard Coggshall of Minneola, Florida, Chairman of the Honey Industry Council, was named to do this job. Mr. Coggshall will be at the London fair September 1 thru September 17, and at the Munich fair September 23 thru October 2.

Past Meetings

Wyoming Association

George B. Krause, Jr., of Riverton, has been elected president of the Wyoming Beekeepers' Association at the annual meeting in Worland. H. E. Rauchfuss of Cody was named vice president and Walter Fliegner of Riverton, secretary-treasurer.

Ernest W. Fair
Box 231
Boulder, Colo.

North Georgia Association

The annual Christmas party of the North Georgia Beekeeper's Association was held at the Elks club in Decatur December 16th.

Each member brought a gift for a child (Christmas wrapped and they were delivered by past President M. K. Fewell to the Eggleston Memorial Hospital for children. This is one of our annual projects, and one that these unfortunate children enjoy. Members present pledged Pres. Patton that we would "Keep Buzzing Around" for prospective members as well as the absentees and put the BEE on them for new members for the Association, as our Association is an important one—or else it would not function so admirably today. Pres. Patton asked that the membership attend these meetings regularly every month as he will have a panel of Three Bee experts at each meeting to answer any question about bees and beekeeping that any member might ask and to be answered to our satisfaction. At the close of the meeting the following officers were installed for 1960:

President, W. G. Patton; 1st Vice Pres., J. W. Sheppard; 2nd Vice Pres., Wm. S. Sharp; Treasurer C. T. Bennett; Rec. Sec., David W. Johnson; Corres. Sec., Eddie J. Karst; Rev. Fred L. Glisson, Chaplin.

Eddie J. Karst
Corres. Secretary

Utah State Association

The Utah honey producers will study a proposal that the industry set up a central bargaining agency to seek more uniformity in price.

During the two-day convention of the Utah State Association in Salt Lake City, Dec. 4-5, a study committee of five was named after the suggestion was made by Dr. Morris H. Taylor, Utah State University Extension Service.

Dr. Taylor said there is no "rhyme or reason" to the present method of pricing, with most individual producers setting their own prices. What complicates the picture, is the fact that out of 400 beekeepers, all but about 40 are hobbyists or those who keep bees as a sideline.

He added that without some device to judge the market "too often you'll find yourselves competing against each other."

The 60 delegates declined to endorse a government-sponsored program for honey marketing slated for action Jan. 14, at the American Beekeeping Federation convention in Phoenix.

Ed Lewis, Ogden, was named delegate to the AFB convention. Nard E. Mill, Salt Lake City, was named alternate.

Ernest W. Fair
Box 231
Boulder, Colo.

Weber County Association, Utah

The Weber County Beekeepers Association was formed at Ogden during a meeting in the offices of Melvin S. Burningham, County Agent.

Robert Nielson, Weber county beekeeper, was elected president of the new group, to be assisted by Lue Birch, first vice president; Edward Lewis, second vice president, and Clarkston Illum, secretary. Mr. Burningham will serve as advisor to the organization.

Members are professional and amateur beekeepers in the county. They will meet monthly to discuss management, honey marketing and trade ideas.

First project planned is a wall map of Weber County where beekeepers will plot location of the area's bee yards. The map will be hung in the county agent's office.

Robert Ellefsen
Salt Lake City

SECRETARIES, PLEASE NOTE

If you feel that a report of a past meeting is important because of items that are unusual or of considerable interest to others, we are glad to get them. However, reports of an ordinary nature are often much delayed in publication as room is entirely lacking so they cannot be used.

We May Be 100 But We Have Young Ideas

We are already making plans for new features in 1961. Keep your ideas young by placing your subscription for next year now!

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Each label in complete color and each one separate (an actual label) to put on your container to see how it looks.

AMERICAN BEE JOURNAL

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Our honey labels will tell your honey story, by word and picture to encourage sales. Our sample catalog is yours for the asking.
Each label in complete color and each one separate (an actual label) to put on your container to see how it looks.
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3-lb. Pkg. w/q	4.00	3.75
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JOHN A. NORMAN
Route 1 Grady, Ala.

Sense & Nonsense

It is said that bees can predict the weather. They do it with their little stings, and, curiously enough, they always make it warm.

"Bees," says the Scientific American, "can remember a man." We didn't know that, but we have frequently had reason to believe they could dismember him.

It is said that the sting of a bumblebee contains only one-fiftieth part of a drop of poison, but it sends it home with as much enthusiasm as if it were a gallon.—Burlington Free Press.

"I want to look at a pair of eyeglasses, sir, of extra magnifying power." Dealer—"Yes, ma'am; something very strong?" "Yes, sir: while visiting in the country last summer I made a very painful blunder, which I never want to repeat." "May I ask what that-er-blunder was?" "Oh, yes; I mistook a bumblebee for a blackberry."

Sunny May day, with whitest clouds,
And twittering swallows high in air,
A timid zephyr from the South,
And fragrance, fragrance everywhere
Young grass, pink buds; all bees astir;
With plow, afield the swain I spy,
And, in her door, the young, good wife
To baby singing lullaby.

C. G. Blanden

May sun is bright—the air is clear,
The darting swallows soar and sing,
And from the stately elms I hear
Bluebirds and bees salute the spring.

"Be sure the new hive is clean and neat.
Smear it with beeswax and with honey sweet.
Have no foul smell about it, for the bees
Are mostly all old maids, whom you must please
By making things quite tidy and 'so-so,'
Else in a fit of dudgeon, off they go!"

—Wm. F. Clarke

The grand essentials of happiness are—something to do, something to love, and something to hope for.

VOL. XXIII JUNE 15, 1887 NO. 24

A Revised Version — Little girl studying Sunday school lesson (third chapter of Matthew)—"Uncle Henry, what did John wear a leathern griddle for?" Uncle Henry "A leather griddle! Why, what do you mean?" "Why, it says here, 'And the same John had his raiment of camel's hair and a leathern griddle about his loins, and his meat was locusts and wild honey.' Oh! I see! to cook his locusts on." And away she fled.

Hold back the honey—If you want to maintain the advancing prices for honey—do not ship a pound for 5 or 6 weeks to come. Just read the following from Boston honey merchants.

Honey being so short, we thought 20 and 22 cents per pound low enough to sell to the jobbing and retail trade, and we have sold none for less than 20 cents, except one lot of odd size comb.

We wish to second what you say editorially to the producers, in the American Bee Journal, to hold honey back for a month or two; and in that way good prices can be maintained right through the season. We are receiving a good many letters from all over the country, asking if we can sell their honey at prices quoted in the American Bee Journal, and we write them that at present we cannot advise shipment here, for if we should have it all come here, we could not sell for over 15 cents per pound.

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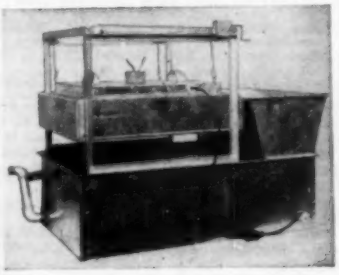

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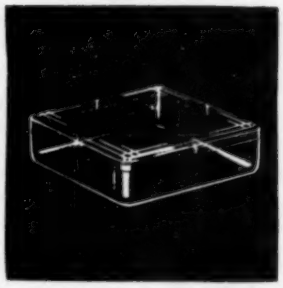

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Crop and Market

by M. G. Dadant

Crop Compared to 1959

Of course it is only in the southern sections that we are able to judge pretty well how the crop has been.

The Atlantic seaboard does not seem to have fared any better than a year ago and the crop was comparatively short then. As we go farther south, Georgia, Florida and extending over into Alabama and Mississippi, the crop has been considerably better than a year ago and apparently quite satisfactory to the beekeepers. In Louisiana, some reports are that the crop is three times the 1959 figure and in Texas at least the equal of the year previous.

In the more northern sections we can judge on the basis of at least the beginning of the sweet clover and the middle of the Dutch white clover. In practically all of these areas beekeepers were greatly elated earlier on account of the good moisture and the rapid recovery of losses, as well as of strength in colonies which survived the winter.

However, the moisture and the cool weather continued to the point where even into June bees were doing practically nothing. In some cases they had gathered a super or so of honey only to drop backwards as July was approaching.

Only probably in Kansas and Oklahoma do we find the crop above normal and in these cases probably 25 to 35 per cent better.

Unfortunately, this writer is unable to find any place else where the crop has been above a year ago even with fantastic crop prospects judging from condition of bees, condition of the honey plants and moisture.

In other words, throughout all the clover areas almost exclusively the prospects were excellent but have passed on through June with no possibility of the bees gathering any great quantities of honey and, of course, no possibility of making up for the shortage. We may yet anticipate a good ending to the legume flows and the possibilities of fall crops at least in some special areas where rains have been so heavy as to almost preclude the planting of corn and beans. (This happened around the immediate vicinity of Hamilton.)

Minnesota and southern South Dakota and western Iowa do seem quite promising at the date this is written (July 21). There is still considerable promise on the east slope of the Rockies. Montana hopes that with warm weather they may equal a year ago and Idaho possibly. Oregon and Washington have had ample rains and their crop probably will be up to 1959.

In our last Crop and Market page we mentioned that the California '59 crop was an excellent one. We meant 1958.

The present crop in California up to date at least is considerably better than a year ago which was in itself a failure but dry weather has interfered with the desert areas so any anticipation of a better crop will have to come from the irrigated areas which are just now coming into bloom.

In fact, sections of Utah and even into Colorado are reporting California bees coming over to try to harvest a legume crop. New Mexico and Arizona fare not any better than California.

Moisture and Weather

We have yet to consider moisture. Living in an area which has had abundant moisture this year, it is hard to conceive of any place where the moisture might be deficient. However, this seems to be the case in the New England states extending into New York and New Jersey. Alabama and Louisiana are also reporting dry now and the tupelo section has been especially hard hit this year.

Getting over into the intermountain states, Wyoming is dry as are Nevada and Utah and extending, of course, down into New Mexico and Arizona. Idaho perhaps dryer than usual but, of course, much of this forage land is irrigated.

All in all what promised to be an excellent season has turned out to be a very mediocre one and this applies as well to all of the Canadian provinces although perhaps conditions are better in the eastern provinces than in the prairie and Pacific provinces.

In reading this over we find we have neglected to say that Tennessee and parts of Kentucky are reporting a better crop than a year ago by considerable but that, of course, partly due to the fact that Tennessee was short a year ago.

All in all, we don't see how the total crop for the country, unless conditions pick up during the last few days of July and into August, can equal that of 1959.

Honey Prices

Very few prices are reported. Of course in Florida and Georgia the honey has been selling for some time and good white orange honey has been bringing as high at 13½ to 14 cents with most sales apparently at 13 cents and the amber in the neighborhood of 10 cents per pound which is entirely too low for this year but an improvement over what it was a year ago.

There is report of one sale of new crop honey in advance of extracting at 13½ cents f.o.b. honey house in Dakota and we notice that the California reports indicate that orange honey is selling as high as 16 cents with probably the bulk of the sales around 14 cents with amber still holding at a low figure.

Part of this is largely due to the fact that importations of honey are coming into the United States from Central and South America and it is not always amber honey either. This Central and South American honey is competing very definitely with American honey in the European markets, making for a lower export.

Summary

All the circumstances indicate a moderate crop of honey in 1960 and with no carryover whatever. However, there should be definitely a trend upwards in the market. Buyers are not yet active, apparently waiting to see what the legume crops would produce but we believe they will be disappointed and may be reaching out for honey before long to assure themselves of a packing backlog.

Personally, I don't see why white honey should sell at less than 14 cents and generally around 15 cents where the producer is able to wait. We look for this to be about the figure. Amber should not go quite in proportion but certainly should not rest at the ridiculously low figure of last year and much of which has been projected on 1960.

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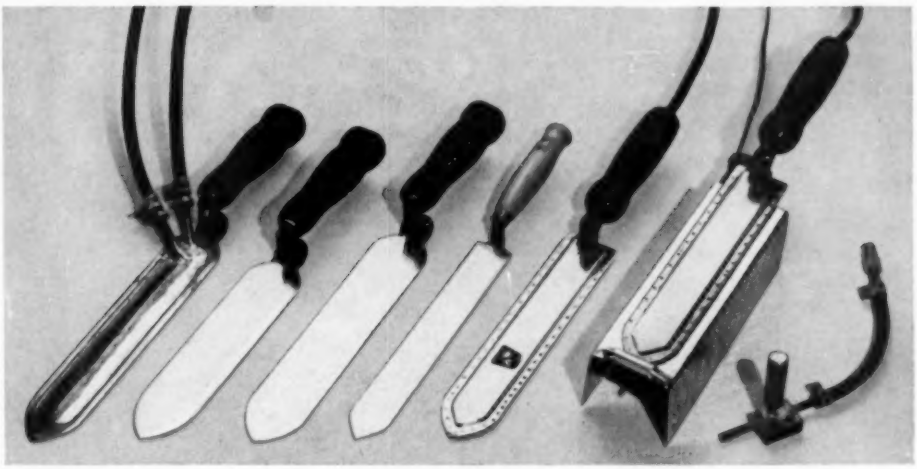

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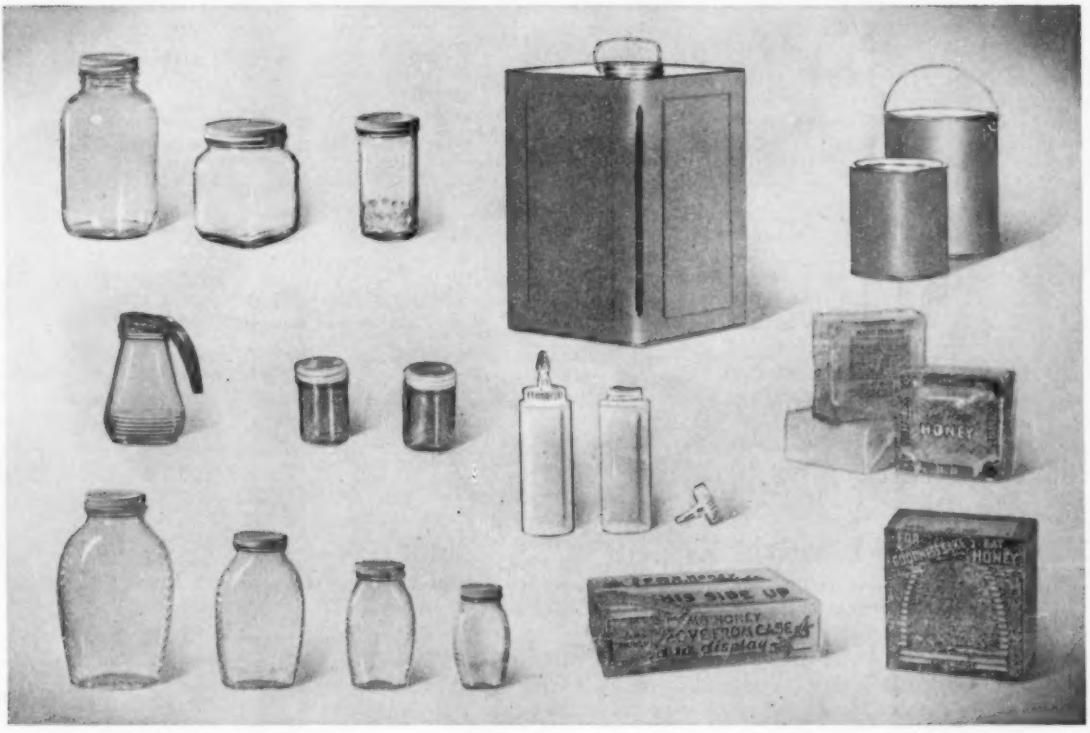

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